KARNATAKA CHAPTER

Insights for Healthy Ageing

Volume-One

EDITORS
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National Institute of Mental Health and Neurosciences
NIMHANS
(An Institute of National Importance)
Bangalore

VayoManasa Sanjeevani

Promoting Mental Health and Well-being in Older Adults

An outreach initiative of Geriatric Clinic & Services

HELPLINE NUMBER
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OUR GOAL

1. Promoting Age friendly community
2. Promoting Awareness on Aging and mental health
3. Training of lay counsellors, volunteers and caregivers on geriatric mental health
4. Psychosocial intervention by lay counsellors and volunteers
5. Psychosocial care program in old age homes
6. Integrative medicine for healthy ageing
7. Geriatric tele-psychiatric services

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VOLUME ONE

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Foreword

With increased longevity and improvement in access to health care, the spotlight is now on understanding ailments, lifestyle and preventive measures in the preparation for later life. Geriatric Health Sciences has started to get its due importance globally. However, it cannot be just another separate specialty, but a specialty that could lead a collaborative multi-disciplinary holistic approach.

Realising the importance of increasing global population of older adults, the World Health Organisation (WHO) has announced the decade of 2021 to 2030 as the "UN Decade of Healthy Ageing". India is also ageing rapidly and it is estimated that by the year 2050, there will be one in five elderly people aged 60 years and above. Therefore there is a need to enhance understanding of the common health and social issues related to the older adults, by disseminating science and knowledge of the current understanding of different health issues from different disciplines to all the elderly people and also their family members.

I believe that the 'VayoManasa Sanjeevani' initiative of the Geriatric Psychiatry Services of the Department of Psychiatry at NIMHANS has taken a great forward step towards the cause of healthy ageing to educate the general public on healthy ageing through the collection of chapters from different specialties.

Prof Pratima Murthy,

Director, NIMHANS.

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MESSAGE

Life is an intricate combination of matter and spirit. While the body grows with age, our spirit must also grow. Food and exercise nourish the body and the spirit is nurtured in a space of love and enthusiasm. We are born with a sense of innocence, an innate sense of security and openness to connect with all life around us. Keeping our innocence, wonder and the sense of belonging with everyone alive as we grow through diverse bitter and sweet life experiences is the Art of Living.

It is nice to know that this book addresses the topic of healthy ageing from all perspectives - of body, mind and spirit. Congratulations to all the contributors.

With best wishes and blessings

-Gurudev Sri Sri Ravi Shankar

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This is a public health education work published by NIMHANS from its VayoManasa Sanjeevani Initiative in collaboration with Indian Psychiatric Society Karnataka Chapter (IPS-KC).

Following declaration of this decade (2021 to 2030) as Decade of Healthy Ageing by the World Health Organisation in January 2021, it was felt that there was scope and need for creating awareness of health and social issues of the older adults.

We received 40 chapters covering range of topics, through invite, based on their expertise and interests in working with geriatric age group. The articles were written in simple language, some based on case–based discussions style and many others Frequently Asked Questions style. All the articles underwent peer review process, done by three experienced, renowned experts who are senior citizens themselves, suggesting revisions, amendments make it more readable. The Editorial Team also added sketches, drawings many done by or about older adults.

In my role as one of the Editors, I must mention that some Doctors/ Specialists/ Authors wrote and contributed, while they were ill, infected with Covid–19, family members including children ill and during or in between

their Covid Duties in Covid Wards or ICU. So, a special thanks to all the authors. Should this book reach many older people and their caring adult children, then this will mean mission accomplished. This book support the need for multi–disciplinary holistic approach to educate, prevent and manage health issues in older people.

Disclaimers: Authors have made attempts to simplify the ailments, issues commonly encountered in their specialty (and not exhaustive), with an aim to educate and for health promotion work only. The Authors and Editors advice to use the information as knowledge and for preventive reasons only. These information in no way to be used as substitute for attending and consulting your Doctors or Specialists/ Experts in other disciplines. Authors do not recommend self–healing or self–medication methods. Inspirational Quotes in the book are submitted by authors from the google search, to engage the readers.

Thanks to Mr Srinivasa Murthy, Ms. Jeena Sabu and Mr S S Hiremath for their support

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Chapters
Volume–1

1

Concept of Healthy Ageing

Prof P T Sivakumar &
Dr Abhishek Ramesh

Case Scenario:

Mr V is a 75–year–old retired engineer. He had hypertension and diabetes for past 10 years. These were well controlled with treatment. He was actively involved in the management of the local temple. He developed weakness of right upper and lower limb 6 months back. Due to this he had difficulty in walking and mild cognitive impairment. He has remained in bed most of the times since then. He stays in a second–floor house with no lift facility. His wife is 70–year–old and she has difficulty to mobilize him actively in view of his weight and lack of adequate support system. Their children are living abroad and both Mr and Mrs V are very distressed about this situation. This has contributed to interpersonal issues between them.

Mr V's Physician evaluated him through a home visit and completed a comprehensive assessment. He recommended interventions to promote physical and mental health. He discussed with the family and suggested changes in the environmental support. Mr V relocated to the ground floor home in a community that facilitates safe access to open place. They also availed the service of a geriatric caregiver who helped him to ensure mobility with a wheelchair. Subsequently, Mr V could go to the park and meet friends, attend physiotherapy sessions, visit temple, and participate in spiritual activities. This promoted his well–being despite the limitations in his physical capacity

What is healthy ageing?

World Health Organization (WHO) has defined healthy ageing as "the process of developing and maintaining the functional ability that enables well–being in older age". This definition has emphasized on the functional ability rather than the health status or absence of chronic health conditions. The goal for healthy ageing is to promote well–being of older adults. This will be possible if the older adults are able to carry out their daily activities independently or with appropriate environmental support. The level of support required to maintain the functional ability will vary according to the capacity of the individual.

What is the importance of healthy ageing?

The life expectancy of individuals at birth as well as the life expectancy at 60 years of age is increasing gradually with time. If these additional years of life is spent in good health and meaningful functioning, the well–being of the individual and their family will be

promoted. In view of the population ageing, there is increase in the proportion of older adults aged 60 years and above. Older adults have higher burden due to physical and mental health issues. Promoting healthy ageing is the most important strategy to manage the challenges related to population ageing.

What are all the things that older people identify as important to maintain healthy ageing?

Older people identify physical and mental health, mobility, cordial relationship with family and friends, financial security, ability to engage in meaningful activities as some of the important factors to maintain healthy ageing. Maintaining independence and good quality of life is often considered as important to promote healthy ageing. It is important to recognize that the responsibility for promoting healthy ageing is not entirely dependent on the older adults alone. There is an important role for the family and society. Multi–sectoral actions are required to promote and sustain healthy ageing.

What can an individual do to promote healthy ageing?

This can be understood based on the physical and mental capacity of the individual. They may have high and stable capacity, declining capacity, or significant loss of capacity.

Older adults with high and stable capacity

Old age is not equivalent with ill–health as significant proportion of older adults may have well–preserved physical and mental capacity. The goal for these individuals will be to prevent or identify any chronic health conditions early. In view of the ongoing changes

in the capacity due to ageing, it will be good to do regular activities that can promote physical and mental capacity. This includes regular physical activity, healthy diet, adequate sleep, social and cognitive engagement. They require periodic health evaluations to facilitate early identification of any chronic health conditions that are common in elderly such as hypertension, diabetes, hearing and vision impairment etc. Early identification and intervention can facilitate prevention of the disability and promote well–being.

Older adults with declining capacity

Many older adults have chronic health conditions with some impairment in physical or mental capacity. They need interventions to reverse or slow the decline in capacity. This could include medical or psychosocial interventions, lifestyle modification and supportive aids. The extent of intervention to maintain the functional ability may vary with the progression of the decline in capacity. Many of these interventions are long–term and it requires active cooperation of the older adult to ensure regular adherence. They need to be aware of the potential long–term consequences associated with significant loss of capacity such as stroke, kidney failure, dementia etc.

Older adults with significant loss of capacity

Many older adults may have chronic health conditions with significant disability. This could involve severe impairment in hearing, vision, mobility, cognitive function etc. These individuals may require significant assistance for maintaining their daily activities. It may appear unusual to talk about healthy ageing for individuals with such severe loss of physical or mental capacity, which may be irreversible or progressive most of the times.

However, the definition of healthy ageing does not exclude such individuals as the possibility of improving the functional ability is realistic even in them with the provision of appropriate supportive environment. Conditions like severe hearing impairment and physical impairment requires use of supportive aids. Many individuals perceive significant stigma and do not accept supportive aids. These individuals need awareness and realistic understanding of these conditions to ensure adherence to appropriate supportive interventions. Some of these individuals may have significant loss of mental capacity requiring more assistance from caregivers.

What is the role of family in promoting healthy ageing?

The care of older adults has significant role for family caregivers. The early symptoms of health conditions such as dementia and psychosis are usually identified by family members as many of the older adults with these conditions will not have awareness that they have a problem. Even for the conditions that the older adults will usually seek treatment by themselves, family members have a significant role in helping the treatment process. This may be due to the factors like financial dependence or lack of access to adequate social security measures for elderly. Lack of age friendly environment and services necessitates the requirement of support from family caregivers, even for those with adequate financial resources.

What is the role of the society in promoting healthy ageing?

Healthy ageing is dependent on the environmental support available for the elderly. There is a significant

role for the society in determining the nature of the environmental support. The attitude towards elderly is an important factor that influences healthy ageing. Ageism at the societal level can contribute as an important barrier in preventing healthy ageing. It is important to recognize that achieving healthy ageing is not the responsibility of the individual alone. Age friendly environment is an important requirement that needs attention from multiple stakeholders including the health system.

What are the major areas of action as part of the United Nations Decade of Healthy Ageing (2021–2030)?

Recognizing the importance of healthy ageing and the need for multi–sectoral actions in a sustained manner, "United Nations Decade of Healthy Ageing" has been launched from the year 2021 to 2030. The important areas identified for action includes

- Promoting change in the attitude towards ageing and older people
- Enabling Age friendly environment that strengthens the abilities of older people
- Providing person–centered integrated care and ensuring that the primary care health services address the needs of elderly
- Providing long–term care services for elderly requiring such support

What is the importance of combatting ageism in promoting healthy ageing?

Ageism is an important barrier to promote healthy ageing. Ageism promotes stereotyping elderly in an

inappropriate manner ignoring the diversity in their profile. It contributes to denial of equitable opportunities to ensure their well–being and dignity. Ageism could influence the attitude of elderly, their family members and society in general that includes multiple stakeholders involved in the care of elderly. Ageism contributes to the neglect in providing appropriate interventions to address the health and social care for elderly.

What is 'Age Friendly Environment?' How does it support healthy ageing?

Age friendly Community would enable the infrastructure and services to be inclusive and accessible for elderly. This emphasizes age friendliness in housing, transport, health systems, outdoor spaces, buildings and communication. It should also promote social participation, respect, social inclusion, civic participation and employment. Age friendly environment will promote healthy ageing by improving the quality of life of elderly.

What are the changes required in health system to support healthy ageing?

Health system is usually focused on acute health care. Elderly requires appropriate health systems for chronic care to manage the challenges related to the non–communicable disorders like diabetes, hypertension, ischemic heart disease etc. The health system for elderly should be equitable and accessible. It should be inclusive for those with disability and include home based services. Most of the services for health care of elderly should be available at primary health care level. The health care services should not be fragmented. Promoting Integrated and person–centered care will support healthy ageing.

What is the role of 'Long–term care' in promoting healthy ageing?

Elderly with significant loss of capacity may require long–term care services to help with daily activities. This is required to ensure dignified late life. Long–term care systems are not well developed in many low– and middle–income countries including India. Most of these countries have significant economic challenges to provide long–term care under universal health coverage. Conditions like dementia require specialized long–term care services and it is one of the main reasons or institutionalizations. In India, the family caregivers are expected to provide long–term care for most of the elderly. Home based support through professional caregivers are limited to those with affordability as the cost of care is usually from the out of pocket expenditure.

Culturally sanctioned Attitude and Activities:

In Indian Culture, once they get to 60s, it is suggested that to:

- Reduce needs, expectations, desires and passions and to lead to simple life
- Get detached from worldly attractions, money, materials and luxuries
- Develop interest in their religious or spiritual activities
- One may consider preparing self to face death with smile

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2

Physiological Changes with Ageing

Dr P N Ravindra

Introduction:

Ageing is a normal unavoidable biological process. According to world population prospects 2019, one among 11 individual is more than 65 years of age and it is projected that by 2050 one among 6 people will be old. In our country the population of older adults is increasing and it is anticipated that by 2050, 20% of population will be of older age and the average life expectancy will be about 80 years. This change in the demographic profile of society will bring challenges in health management and strategies of elderly population. Therefore, it is important to understand the changes that is expected with normal ageing process. This will enable and empower the individual to appropriately

modify their lifestyle to maintain better health and well–being.

There are many processes that explain the cause of ageing. The foremost process is related to genetic mechanism – a biological timetable, wherein the genes are programmed to initiate normal ageing process. However, in addition to this, environmental insults, stress, hormonal, and immune modulations will bring about changes with ageing. In all these processes accumulation of free radical appears to be the common step which leads to reduced regenerative and recuperative capability. Free radical cause death of cells eventually leading to dysfunction of organs as–well. Cells normally undergo wear and tear; the aged cells are replaced with new one. Telomere (the tip of chromosome) length play an important role in successful cell division. Telomerase is the enzyme that helps in maintaining the length of telomere. When telomere reaches a critical length, cell stops replication and eventually dies which will be followed by death of whole system. The environmental and psychological stress is known to influence the telomere length and accelerate the ageing process. Therefore, maintaining adequate physical, mental, and emotional health play an important role in having a graceful ageing and well–being.

The ageing process influences various physiological system. The functional capability of almost all the system gets into a declining mode and this is hastened in person with excess stress and reduced stress coping skills. Different organ system shows a variable vulnerability for ageing. Cardiovascular and respiratory system appears to be more vulnerable showing early decline, whereas attenuation of gastrointestinal function sets in later and

slow to progress. On the contrary, neurological system though starts to decline later but its trajectory of attenuation is faster. However, musculoskeletal system shows slow decline. Therefore, understanding the effect of normal ageing process on various physiological system is basic and crucial to known ourselves.

Cardiovascular changes:

Heart and blood vessels are intimately connected to ensure blood is pumped with adequate force so that every cell of the body gets adequate oxygen and nutrition. Heart rate (heart beats per minute), capacity of heart to keep blood before pumping and elasticity of blood vessels (blood vessel expands to accommodate column of blood) are the three major factors that determines the blood pressure. With normal ageing there will be increased accumulation of lipid (fat) in the blood vessels, the elasticity of wall of blood vessel reduces and capacity of heart to accumulate and pump blood is decreased. Thus, heart pumps blood with more pressure thereby enhancing blood pressure. Increased resistance offered by blood vessels (due to fat accumulation and reduced elasticity) to the easy flow of blood will increase diastolic blood pressure. When heart pumps against the rigid blood vessels, systolic blood pressure increases. If the blood pressure is more than 140/90 mmHg and this value is consistent when measured three times (on three different days), it indicates the sign of increasing in blood pressure. Uncontrolled blood pressure due to irregular medication is risk factor for heart attack, stroke, brain hemorrhage, kidney failure etc.,

Practical TIPS: To reduce blood pressure and to maintain good cardiac health

- ✓ Do regular exercise (walk 40min / day with rest in between) – helps to reduce fat and maintain elasticity of blood vessels.
- ✓ Avoid excess fat and oil in diet
- ✓ Take regular medications of hypertension and diabetes.
- ✓ Reduce/avoid tobacco consumption (smoking, chewing etc) – Tobacco consumption impairs oxygen supply and increases blood pressure. Also risk factor to develop cancer.
- ✓ Snoring is a risk to develop heart problems, therefore, if snoring is regular (since years) and loud contact your physician.

Pulmonary (respiratory) changes:

Lungs play an important role in breathing process. For every cycle of breathing (breath–in and breath–out) 500ml of air is inspired. The oxygen in air is absorbed into blood and carbon–di–oxide from blood is taken into lungs which is breathed out. Elasticity of the lungs and efficiency of respiratory muscles (muscles attached to ribs, diaphragm, and abdominal muscles) play an important role in expansion of lungs. Optimal expansion and contraction of rib cage / lungs will enable the small airways inside the lungs to open which contributes to gas exchange. Deep breathing (8–10 breathing cycles/min) will enable efficient exchange of oxygen and carbon–di–oxide in lungs and improves cardiac health as well. With normal ageing process, the elasticity of lungs and efficiency of respiratory muscles decreases. Therefore, normal opening and closing of small airways is compromised. However, if an individual is non–smoker this will not cause any discomfort. Whereas, in regular

tobacco smoker the air gets trapped inside the small airways leading respiratory problems.

Practical TIPS: To improve lung capacity

- ✓ Practice regular deep breathing exercise (20 min) – This also helps to maintain blood pressure.
- ✓ Stop cigarette smoking.
- ✓ Breath in and breath out in respirometer (a small affordable device that helps to increase lung capacity and strength of respiratory muscles) at least once in morning.

Hormonal changes (Endocrine):

With normal ageing, changes in functioning of insulin, thyroid, calcium levels (maintained by hormones) and sex hormones are commonly observed in both males and females. In females, there will be a menopause (stopping of menstrual cycle).

Insulin is the hormone that helps to maintain the normal levels of glucose in the blood. Glucose gets into muscles with the help of insulin and exercise will improve this process. With ageing the sensitivity of insulin to detect the glucose levels in blood and taking it into the muscles will reduce, thus leading to insulin resistance, thereby increase glucose levels in blood leading to diabetes. Excessive fat in abdomen (abdominal obesity), reduced physical activity and more stress are the risk factors to develop insulin resistance.

Reduced thyroid activity (reduced levels of thyroid hormone) is observed more in females though can be in males as well. This will make an individual more lethargic; memory reduces, appetite becomes less and gain weight (due to fat accumulation).

Calcium is managed by two hormones (parathormone

and calcitonin). There are two forms of calcium in our body viz calcium in circulation and in store; these play a major role in providing strength and remodeling of bone. Reduction in calcium in older age leads to weakening and brittleness of bone (osteoporosis – more common in females). Further, calcium also plays an important role in muscle contraction including heart. Therefore, calcium and vitamin D supplement is important.

Sex hormones – testosterone in males and estrogen in females reduces with ageing. Reduction of estrogen begins early and rapid than testosterone. However, the reduced sex hormones may not be only responsible for reduced interest in sexual act. Alteration in sex hormones brings about reduction in muscle mass, decrease in bone strength, alteration in lipid level. Normally there is no need to have any supplement for sex hormones.

All the above–mentioned changes in hormones lead to alteration in lipid profile (increased cholesterol, triglycerides, and low–density lipoproteins –LDL (bad cholesterol); decreased high density lipoprotein–HDL (good cholesterol), diabetes and hypertension. In addition, reduced physical activity, stress and unbalanced diet will add to the burden.

Practical TIPS:

- ✓ Regular physical exercise / Yoga to maintain glucose, enhance calcium levels
- ✓ Balanced diet with adequate micronutrients with fruits and vegetables.
- ✓ Expose to early morning sun (walk, jog, exercise)
- ✓ Take nutritional supplements (Vitamin D, calcium, and Vitamin)
- ✓ Continue with regular medications

Brain changes

Ageing affects brain in multiple ways from gross reduction in brain volume, alteration in brain blood vessels to decreased cognitive capabilities. Brain volume declines with age at the rate of 5% per decade around 40 years of age and the rate of decline increases after 70 years. Among the regions of the brain, frontal areas (the part of brain behind forehead which is involved in cognitive) is most affected with ageing. This part of the brain is also involved in bringing about higher cognitive capabilities. The most important cognitive change associated with ageing is with memory. There are four main classes of memory viz episodic, semantic, procedural, and working memory.

Episodic memory is a form of memory in which the information is stored with some experience – for example first day in your office, the day you got married or became a parent etc. **Semantic memory** the term used for the information stored with meaning E.g. Delhi is capital of our country, the name of the area where you reside, the president of a country etc. With ageing the recall of episodic memory and remembering the semantic information declines. **Procedural memory** is the process that is hardwired in your neural network related to any motor act Eg. Cycling, driving, typing, painting etc. The procedural memory perse is not much affected with ageing, however due to other problems like reduction in muscle strength, dexterity and reflexes the performance may hamper. **Working memory** is the capacity to keep information in store for short period of time (seconds to minutes) and reproduce, Eg. recall of name or list of items immediately after listening to the same. With ageing the number of items that can be stored in working

memory declines. This decline in working memory is related to reduction in volume and size of hippocampus (the area in brain responsible for working memory). Reduction in dopamine and serotonin (neurot-ransmitters – chemical in brain) is associated with decline in cognitive performance, and the reduction of these neuro-transmitters is more profound in frontal cortex and is more in men than women.

Other damage associated with ageing is with blood vessels of the brain. The deposition of cholesterol, reduction in elasticity makes these blood vessels more vulnerable to get rupture due to high blood pressure. This leads to less blood supply leading to memory loss and severe rupture leads to stroke. Therefore, high cholesterol (triglycerides) levels, hypertension, diabetes are common risk for cardiac and brain related disease with ageing.

TIPS

- ✓ Regular Physical exercise/Yoga
- ✓ Deep breathing practices and regular prayers
- ✓ Engage with society
- ✓ Try to do new things (even like writing in left hand if you are right–handed person)
- ✓ Read that is very inspiring for you
- ✓ Spend time in gardens/ park
- ✓ Continue your hobbies

Sleep

Sleep is the most important behavioral state that play a very important role in physical. mental and

emotional health. Nocturnal sleep (night sleep) in human is divided into two types viz Non rapid eye movement (NREM) and rapid eye movement (REM) sleep. NREM sleep is further divided into light and deep sleep. Though general notion is that dreams (with emotions) are most common during REM sleep, there could dreams associated with NREM sleep as well. Normally we spend more time in NREM sleep (less in REM) in the first half of the night and as the night progress we spend more in REM sleep (less NREM). During sleep all our organs including brain gets rejuvenated and waste products accumulated in brain gets eliminated thereby feeling a fresh when we wake in morning.

With ageing, deep sleep is reduced significantly. This is one of the reasons for not feeling of having adequate sleep despite slept for optimal time (7–8 hours). Further, it needs to be emphasized that our body temperature and sleep has a perfect relationship. Whenever core body temperature drops, we get into sleep mode. Therefore, dysregulation in temperature mechanism with ageing is one of the reasons for feeling difficulty to get into sleep (takes more than 30 min to get into sleep after lights off – sleep onset insomnia) or waking up in middle of night and thereafter having difficulty to sleep again (difficulty in maintaining sleep – sleep maintenance insomnia). Further, frequent urination during night (diabetes, prostate enlargement in males) also disturbs sleep. In old age, it is always advisable to take a nap (for one hour) in the afternoon.

TIPS for adequate sleep;

- ✓ Keep sleep and wake time constant
- ✓ Avoid coffee/tea after late evening

- ✓ Evening short walk helps
- ✓ Avoid using gadgets (mobile)/ TV one hour before bed time
- ✓ Preferably make room dark while sleeping (a small light at ground level is advisable for visibility to use wash room)
- ✓ Listen to soft music while sleeping
- ✓ It is advisable to have a banana and a glass of milk before bed time (the serotonin and tryptophan in this food will help in inducing sleep)
- ✓ Alcohol is not good for sleep so avoid alcohol
- ✓ If feeling difficulty in get into sleep (sleep onset insomnia) it is advised to dip hands till elbow and legs in warm water or also can have a warm water shower before going to bed (this helps in reducing core body temperature).

Conclusion:

Throughout our lives our brain constantly changes. The ability of the brain to change its connections is termed as plasticity. Our daily routine, physical activity, creative work, hobbies, good versus bad thoughts all do shape the structure and function of the brain. The property of plasticity persists throughout life. Therefore, being physically and mentally active, emotionally composed with happiness helps towards healthy and graceful ageing.

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3

Hearing Problems

Dr S P Goswami, Chaitra V & Khyathi G Jain

Over 65% of adults above 60 years experience hearing loss: ***WHO***

Hearing is one of the important senses in humans, which paves way for effortless communication with others without us even realizing about it. Hearing sensitivity is influenced by either several factors, which can be individual specific (such as genetic factors, lifestyle habits, etc.), or environmental factors (such as exposure to loud noise).

Hearing loss is the inability to hear, either partially or completely. It can be either acquired or by birth. While some types of hearing problems, such as infections, may be treatable (hearing can often return to normal), others types are

more permanent in nature and cannot be reversed, such as age–related hearing loss.

Hearing loss in elderly (known as Presbycusis) is not an uncommon issue. Our hearing system is subjected to changes due to ageing like any other body part. These changes occur gradually over time, making it progressively difficult for the elderly person to hear clearly. Pre–existing conditions such as chronic ear infections, diabetes, and/or intake of ototoxic drugs (medications which particularly affect the ear) etc., might aggravate the age–related hearing loss.

How does age affect one's hearing ability?

As we age, our auditory system undergoes many physical and functional changes. It could be as simple as the skin of the ear canal becoming loose and drooping, or more complex changes such as the deterioration (or even death) of the tiny and sensitive hair cells inside the inner ear. Deteriorations also happen at higher and central levels of the auditory system such as the nerves, which connect, to the brain. A particularly worrying aspect of the age–related hearing loss is the slow nature of the progression. This slow progression can also lead to a person suffer from dementia and is placed at high risk for it. Every 7th person who suffers from hearing loss is diagnosed with dementia i.e., memory loss. Thus, adding to co–morbidity in terms of negative outcomes such as poor quality of life and high caregiver burden.

Because of this slow progression, people often do not visit an audiologist (a qualified hearing professional) until the degree of the loss is already substantial.

How do I know if I have hearing problem?

Presbycusis can start as early as 40 years of age and slowly progress over the period. As mentioned before, the early stages of this hearing problem often go unnoticed. Therefore, awareness regarding this issue is of utmost importance so that early intervention can take place. Below mentioned are the signs and symptoms one might look out for:

- ✓ Difficulty understanding speech in presence of noise (e.g. in restaurants or function halls).
- ✓ Speech sounds muffled (you might hear them speak but do not understand them).
- ✓ Understanding someone from a distance is more difficult than before
- ✓ Possible presence of tinnitus (ringing, roaring or hissing kind of sound in the ear).
- ✓ Tendency to increase the volume of TV or radio often.
- ✓ Doorbells, bird chirping or telephone rings are not as audible.
- ✓ Difficulty in hearing a Child's voice.
- ✓ Male's Voice is much easier to understand compared to female voice.
- ✓ You tend to ask others to repeat what they told often.

What next?

Once you have noticed that you are facing challenge with one or more of the above–mentioned scenarios, it is pertinent to consult a hearing health care professional

Effects of hearing problem:

- ✓ Balancing problems leading to frequent falls
- ✓ Dementia
- ✓ Frustration
- ✓ Anxiety
- ✓ Low self confidence
- ✓ Depression
- ✓ Isolation

for a detailed evaluation of your hearing. Audiological services can be obtained either in a private clinic or at government institutions. Once the severity and nature of the problem is ascertained, appropriate treatment will be suggested, which in case of age related hearing loss is usually hearing aids. Hearing aids, explained in the simplest terms, are electronic devices that amplify the sounds in order to compensate for the reduced hearing sensitivity. Hearing aids differ with respect to styles or features they incorporate. Depending on the type and severity of your problem, your audiologist will suggest the most appropriate hearing aid, which will help with your everyday listening needs.

Unaddressed hearing loss:

While being aware of the issue is the first and foremost important step, seeking immediate help is just as important. It has been a tendency of the people to wait till the problem gets worse and consult an audiologist only when their problem is substantial. Some tend to just live with it. A major issue with late consultation is that the individual is likely to receive minimal benefits with the hearing aid when the hearing loss reaches severe degree. Such minimal benefits from hearing aids not only

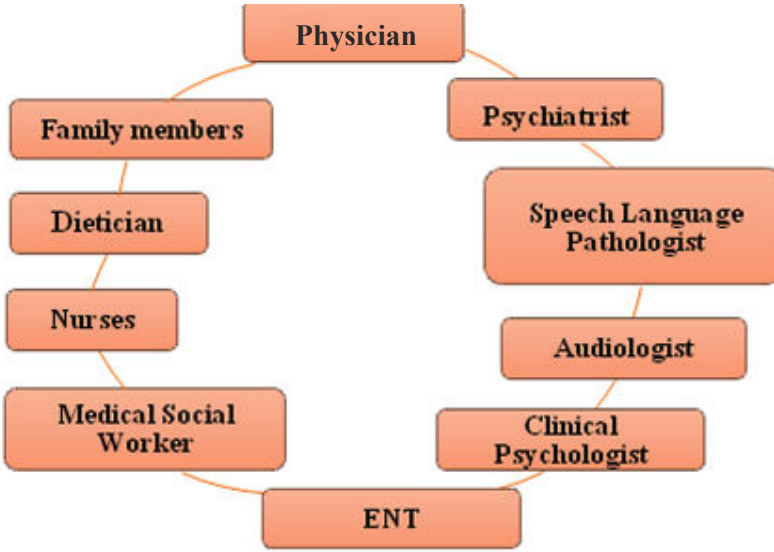
limit the individual's ability to communicate effectively with others, it also reduces the motivation to use the device for a sustained period. Additionally, untreated hearing loss can also lead to a variety of social, emotional and psychological issues, which not only affects the quality of your life but also of your loved ones.

The cost of untreated hearing loss is higher than one might expect. It is, therefore, important get your hearing tested routinely just like you get your test sugar level tested. It is advised to get your hearing evaluated at least once a year once you hit your 40s, once in every six months if the loss is already detected in order to track the progress and get the hearing aid fine–tuned accordingly if necessary.

The audiologist and speech language pathologist are the right professional to approach as your one stop solution for all the problems that may occur for your hearing and communication problems.

TEAM APPROACH

Ageing in some individuals is the period when we face many health problems. It is important to connect to various professionals at right time for effective services for a better quality of life. Team members may either see the patient together or make joint recommendations or may participate as individual consultants. When participating as an individual, the team member who sees the patient initially will refer to other members of the team for assessment as needed. The various team members involved will include



Key responsibilities of multidisciplinary care team

1. Identify patients with potential problem.
2. Perform an evaluation and make appropriate referrals.
3. Future recommendations and management of the problem for the patient.
4. Improve or prevent deterioration of the problem.
5. Prevent other ageing related sequelae.
6. Educate patients, care givers, and other health care providers.

GUIDE FOR ACTIVE HEALTHY HEARING DURING AGEING

Ageing is inevitable and everyone has to go through this phase. However, it can be made healthier by having

an active hearing which facilitates social, emotional, financial and physical well–being. Given below are few tips for hearing to follow for a happy effective ageing.

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4

Eyes and Visual Problems

Dr Balakrishna BN

The eye plays a very important part in our functional, fruitful life. Almost every person would dread to lead a life without normal vision. We cannot imagine how we would go about our daily life without the vision we are accustomed to. This dependence on vision & the fear of what would happen if the vision is compromised is what leads people to believe facts which are not true, follow lifestyles which do more harm than good, & attempt treatment of normal ageing changes & also to not treat conditions which deserve treatment. So let me start this writing with the intention to clear some of those doubts. I would be doing all the readers injustice if I do not stress on the fact that knowing & understanding the English language is different from understanding medicine & this article

should only reduce your worry by directing you to an appropriate doctor at the right time.

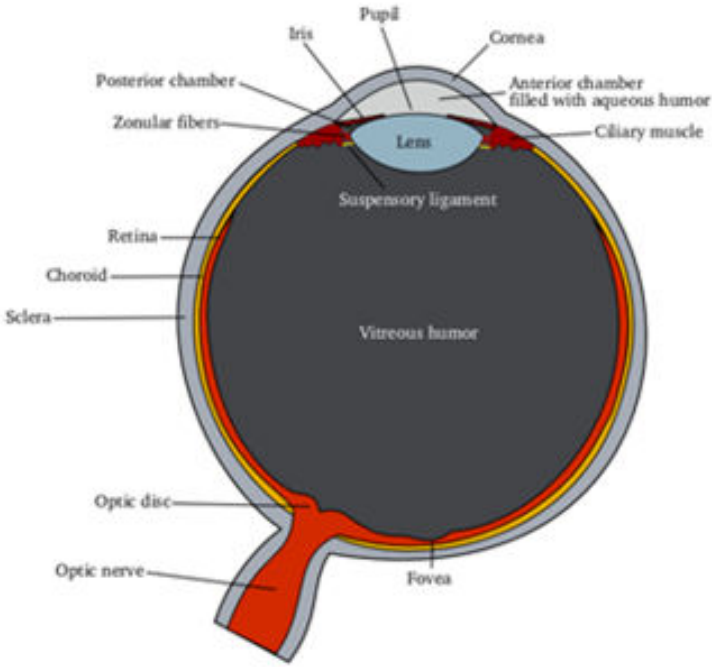

Image source courtesy: https://en.wikipedia.org/wiki/File: Schematic_diagram_of_the_human_eye.png (ps; image used here for public health education purpose only)

Disease part of the Ageing eye

1. Drooping of lids [ptosis]

It is caused by age related changes leading to weakening of the muscle apparatus which, in normal people results in lifting the upper eyelid. This weakening results in less efficient lifting of the upper lid. It does not cause any other visual problem until it's severe enough to cover more than half the eye. Sometimes just

overhanging brow skin also gives the impression of ptosis. More important would be to note any increase in drooping during the course of the day, which might be an indicator of myasthenia gravis, a systemic problem, which needs to be seen by a physician. Ptosis causing visual or cosmetic problem can be corrected surgically.

2. out turning or in turning of eyelids/ eyelashes [ectropion /entropion]

a. Ectropion

Age related weakening of the muscles of the lower lid [more common] leads to an outward bowing of the lower lid. A normal lower lid sitting flush with the eyeball is required for the proper drainage of the tears which continuously flows over the eyeball with every blink. Flowing along the lower lid margin, the tears drain into a hole in the lower lid & from there, into the nose. So, when the lower lid moves away from the eyeball, there is an overflow of water, which doesn't go into the draining hole, called punctum. Constant watering from the eye affects a person's vision. This condition can be corrected surgically to solve the problem.

B. Entropion

This is again caused by age related changes in the tendons, muscles and septae that form the lids, resulting in an inward turning of the lower lid [more common than upper], which results in the lashes touching the cornea & conjunctiva. This can cause irritation, pricking etc. followed by reflex watering. Long standing cases may cause damage to cornea, thus can affect vision. This again needs surgical correction. This is not a condition to be neglected as watering, pricking sensation or redness are common to most of the eye problems, it is common for

people to confuse this problem to be due to allergy etc. & procrastinate seeing a doctor. But, here again, earlier, the better.

Dry Eye

The tears have a very important role to play in the functioning of the eyes. Whenever there is an inadequate amount or an improper functioning of the tears, it is called dry eyes. Very common in the elderly, especially post–menopausal women, & people with increased screen time. Causes dry feeling, burning pricking, discomfort, fluctuating vision etc. What needs to be understood is that management is focused on correcting the factors affecting the abnormal function of tear film, like reducing screen time, avoiding evaporative conditions like ac, increased blinking during watching computer/ mobile / TV, etc. Tear substitute eye drops, which mimic the tears can be used or, as a last effort, punctum plugs to block the outflow of tears can be tried. Proper understanding of the disease without fear of losing the eye is the right approach to face this. Only a few cases of dry eyes can be reversed. The rest must learn to live with it. One can comfortably live with dry eyes with the correct treatment.

Cataract

The crystalline lens is a structure within the eye, which helps to focus incoming light onto the retina to form an image of the objects that we see. Now, any opacity in this crystalline lens distorts or blocks light passing through it & leads to defective vision. This is cataract. If there is one thing that is inevitable with ageing, it's getting cataract. Luckily, it's also very easy to manage. Remedy is always surgical. Painless procedure

is done & the defective crystalline lens is replaced by an intraocular lens. With various types of intraocular lenses available, cataract surgery is now aiming to convert your vision to one of a 20 years old. So, if one has cataract, be happy that the correct treatment will improve your vision.

Glaucoma

It is the damage to the optic nerve with damage to the field of one's vision with an increase in the pressure within the eye. This is a silent thief of sight. The only way to catch the thief is regular annual eye examinations. Waiting for symptoms to develop or saying my vision is good, I need not go to a doctor are factors encouraging this thief of sight. With appropriate treatment that may be eye drops or surgery, the loss of vision can be halted. There is no way to recover the vision lost. The field of one`s vision means that when one is looking ahead at an object of interest, we are also having a whole field of vision of all objects surrounding the central object. Since this field of vision is first lost in glaucoma, one cannot notice it. Because of the above 2 facts, here prevention is the only appropriate measure. Get your eyes tested annually and don't worry about glaucoma.

Diabetic Retinopathy

Nowhere else would I say that prevention is better than cure. If not treated early, this can cause permanent & debilitating loss of vision & hence a functional life. Duration of Diabetes, poor control, associated Hypertension, increased Cholesterol levels, & Smoking are associated with higher chance of Diabetic Retinopathy [DR]. In DR, there are two ways in which an eye is

affected. In the first type, new vessels develop which are fragile & hence bleed easily. With repeated bleeds there can be fibrosis with detachment of retina with loss of vision, ie, damage to the back of eye. This type needs lasers initially & may need surgery later on. In the second type, there is fluid collection in the central important part of the retina & this causes loss of vision. This is managed with repeated injections of medicines given to the eye. Strict control of BP, cholesterol & sugar levels, regular [frequency as directed by the doctor] follow up with Eye Specialists & adhering to these two are a must to have the best chance of having functional fruitful vision.

Age Related Macular Degeneration [ARMD]

This is a degeneration (death of cells) of the central part of retina [macula] responsible for most of our vision. DR and ARMD are the most common cause of irreversible visual loss. Risk factors being increasing age, smoking, high fat intake, etc. Once ARMD sets in, in the initial dry type of ARMD, supplements of vitamins & minerals are likely to delay progression to the second stage. Green leafy vegetables, fruits like orange are rich in lutein and zeaxanthin and should be consumed on a regular basis. Once the disease progresses to the wet form, injections given into the eye form the baseline of treatment. These need to be repeated for life many a times, hence this is a costly affair. Health insurance helps in such cases.

SUMMARY

DR, ARMD, Glaucoma, & Cataract are the major vision threatening diseases affecting the elderly, and are unfortunately not diseases that can be prevented. The

only safeguard apart from healthy lifestyles & diet, is regular checkup with your ophthalmologist, annually. If there is anything that I would like the readers to take home from this, it would be that there is no supplement to regular checkup with an ophthalmologist before the onset of symptoms. Another word would be that since the treatment of some of these are long & expensive, having a health insurance policy that covers these would definitely help.

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To keep the heart unwrinkled, to be hopeful, kindly, cheerful, reverent—that is to triumph over old age.
–Thomas Bailey Aldrich

To me, old age is always fifteen years older than I am.
–Bernard Baruch

The young always have the same problem— how to rebel and conform at the same time. They have now solved this by defying their parents and copying one another.
–Quentin Crisp

5

Diabetes; A common Problem

Dr Ashwini Sarode

Diabetes is a major global health problem. It is a common problem in older people. Approximately 25% of population above 65yrs develop diabetes mellitus and 50% of patients are unaware that they have diabetes. This means around 12million senior citizens have diabetes. This is a very alarming number. What's more alarming is that these numbers are expected to increase by threefold by the year 2050 as the population of older people are increasing and incidence of diabetes is increasing in all age groups.

Are older adults at higher risk of developing diabetes?

Yes, older adults are at higher risk of developing diabetes. There are several factors that contribute to larger number of elderly persons with diabetes.

- Certain studies have shown that Type 2 diabetes in elderly adults has a strong genetic predisposition that means it runs in families. Elderly patients with a family history of diabetes are more likely to develop the disease as they age.
- Also, there are plenty of age–related changes that occur in glucose metabolism (sugar metabolism means a process of breaking of sugar into different chemical components and release energy to be utilised when required or to be stored).
- Lifestyle factors play an important role too. Obese (overweight) individuals, people who are inactive and those with unhealthy diet are at more risk of developing diabetes as they age.
- Certain hormonal changes that occur due to ageing; for example, unusual decrease of testosterone levels in men or an increase in level of testosterone in women is associated with increased risk of diabetes.

Are the symptoms of diabetes in elderly patients same as in younger patients?

Elderly patients often present with different signs and symptoms of diabetes than the younger patients but most of the times they will not have any symptoms. Changes due to ageing can mask some of the symptoms of diabetes. The common symptoms of passing more amount of urine or feeling thirstier may not be the most obvious problems complained by the elderly patients. At

the same time, common complaints in elderly people of feeling tired or lethargy or changes in weight can easily be misinterpreted as part of normal ageing process or other illnesses, which are actually the common ones. These can be the reasons for delayed diagnosis of diabetes in older people.

What are the adverse effects of high levels of blood sugar in the body?

High glucose (sugar) levels in the blood for a prolonged period can cause lot of damage to almost all important major organs in the body, including:

- Kidney damage (Diabetic Nephropathy) leading to kidney failure
- Artery damage which is the cause for strokes and heart attack
- Nerve damage causing tingling, burning and numbness of hands and feet (Diabetic Neuropathy)
- Eye damage (Diabetic Retinopathy) leading to blurring of vision and even loss of vision
- Decreased blood circulation to hands and feet (peripheral vascular diseases)
- Foot infections, delayed wound healing and increased chances of amputation of limbs
- Erectile dysfunction (impotence; sexual problems) in men.

What are the associated problems that occur due to diabetes in elderly?

Elderly people with diabetes for a prolonged time

are said to be at increased risk of developing depressive illness and impaired memory and related function. Diabetes is one of the risk factors for developing irreversible Dementia, particularly Alzheimer's disease.

Also, reduced physical strength and muscle weakness, fatigue, urinary incontinence, vision and hearing loss are some of the other common problems encountered in these patients.

One more serious problem is having frequent falls which can cause grave injuries. Older people are as such prone for falls but diabetes increases the risk even further. This is because diabetes can affect the vision. It can affect the balance and also sensations in the feet. Older people with diabetes are on multiple medications which is also a risk factor for falls.

Apart from these, older patients often feel socially isolated and face financial problems.

How does other physical health conditions affect diabetes in older adults?

Older people have other coexisting health conditions associated with diabetes. Common ones are high blood pressure and high cholesterol levels. All these combined together can put the patient at higher risk of developing sudden heart attacks, strokes, kidney failure and vision loss. Hence it is very important that one should consult your doctor at regular intervals to ensure that your BP and Cholesterol levels are well maintained.

Also, there is increased chances of cancer in older people These patients are very weak and fragile and suffer with decreased appetite and weight loss. Managing diabetes in such patients is a major challenge for your doctor.

What is hypoglycemia (low sugar levels) and why should you be cautious of it?

Hypoglycemia is a condition wherein the blood sugar drops down to below the normal range. This happens when the blood sugar is very tightly controlled. Hypoglycemia occurs commonly in older people but can be dangerous sometimes. Older patients may not experience milder symptoms of hypoglycemia (like dizziness, blackouts, shaking of hands and legs, sweating, palpitations) which can warn them to take precautionary measures like consuming extra sugar. Due to lack of these symptoms, patients will not get the awareness of low blood sugar in the body. When the blood sugar drops down to critically lower levels, patients may become confused and irritable, can develop fits (seizures) and even become unconscious or go into coma. If the blood sugars are not normalised soon, it can cause permanent brain damage and can even cause death.

It is therefore essential that patients be aware of hypoglycemia and measures to be taken to avoid such episodes.

All the family members of diabetic patients should also be aware of the symptoms of hypoglycemia and the emergency measures they can take to normalise the blood sugar levels at the earliest possible time. Also Caring family members must ensure the person is not taking less or more than prescribed medications, as this may happen due to memory loss.

It is recommended that all diabetic patients carry with them some sort of glucose with them all the time and could wear a band or a badge suggesting that they are diabetic especially if the person is a loner.

What measures can be taken to manage the problems?

Diabetes management require a multidisciplinary care input meaning many different health care specialists work as a team. But you are the most important part of the team. Get involved in your planning your treatment and health.

Some of the things you can do are:

- Get regular follow–up checks with your doctor
- Learn how to keep control of your diabetes
- Self–monitor by conducting regular blood glucose checks at home also
- Get your Blood Pressure recorded at regular intervals.
- Get cholesterol and kidney function test done once in a year or as recommended by your doctor.
- Have regular eye check–up as suggested by your doctor. Consult your doctor if you notice sudden blurring of vision.
- See a podiatrist (foot specialist) for regular check–up of your feet.
- Wear proper footwear; Check your feet every night to for any wounds or discharges. Keep your feet dry at all times. It is important to take care of feet.
- Inform your doctor if you suffer from problems of falls. Do not feel embarrassed if you are suffering with urinary incontinence or having sexual problems. Your doctor can suggest you ways to overcome this.

- Discuss with your doctor if you are feeling depressed. There are many treatments available for this and your doctor can certainly help you.
- Follow healthy diet. Consult a dietician and get a diet chart.
- Be as physically active as possible. Do some form of physical activity, after consulting your doctor.
- Discuss with your doctor about adult vaccinations
- Do take your medication as prescribed
- Lead a simple, slow and contentful life
- Avoid Worrying

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By the time we hit fifty, we have learned our hardest lessons. We have found out that only a few things are really important. We have learned to take life seriously, but never ourselves.

–Marie Dressler

I *don't believe one grows older. I think that what happens early on in life is that at a certain age one stands still and stagnates.*

–T. S. Eliot

6

Hypertension; A Silent Killer

Dr Shreni Sunil Navalgi

Case Vignette

A 65–year–old businessman gets up in the early hours of morning and finds out he is not able to move his left hand and leg. His wife rushes him to nearest hospital where they find out that his blood pressures are very high, 190/110 mm of Hg and the CT Head scan done as urgent. It shows bleeding in the brain, which has caused an acute stroke or paralysis.

They never knew he had a high blood pressure as they were busy in the daily routine and he was never symptomatic. Symptoms like fatigue and exhaustion were related to heavy work at workplace.

Regular periodic monitoring will help detecting it early and avoid

complications. More so in persons with family history of hypertension, stressful jobs, habits like smoking, excess alcohol and in females related to pregnancy, menopause, thyroid disease silent kidney failure or in some congenital cases.

What is Hypertension?

High Blood Pressure is a trait (a state) as opposed to a specific disease. It represents a quantitative rather than a qualitative deviation from normal. Any definition of hypertension is therefore an arbitrary one. A practical definition is *"The level of blood pressure at which the benefits of treatment outweigh the costs and hazards"*. Your regular family physician is the person for you to advice and get Blood Pressure recorded regularly.

Pre–Hypertension (high normal) is not 'normal' but is predictive of future hypertension and carries many risks associated with hypertension. In addition, include in the measurements; risk factors, Target Organ Damage (TOD) presence or absence.

Hypertension is the condition when there is blood pressure recorded at two clinic visits are consistently higher than normal range for that age. In adults the normal blood pressure is LESS or EQUAL to around 120/80 mm of Hg. In older adults aged 60 years or over, it is LESS or EQUAL to 150/90 mm of Hg. This is only simplified for the sake of understanding. These are based on guidelines issued and ideally discuss with your Doctor. In patients with co–morbid conditions like chronic kidney disease and diabetes it is LESS or EQUAL to 130/80 mm of Hg.

Over 70% of Indian older adults seem to be living

with the chronic conditions like hypertension, diabetes, stroke or heart disease.

What Steps must be taken to early detection of High Blood Pressure? What are the complications of late detection?

High Blood pressure or hypertension can be silent killer. Most often the high blood pressure may not give early warning signs or bodily symptoms to help detect early. Unfortunately, it comes to light in Emergency Department when they are assessed for possible stroke (blood clots in brain) or Myocardial Infarction (Heart Attack). Hence when you are old, pay regular visits to your family Doctor, get your Blood Pressure recorded at each visit, and where possible, self–monitoring of Blood Pressure can reduce morbidity and mortality, meaning it can save lives.

How common is Hypertension?

Studies have shown 20–25% of elderly people who have high BP, either don't take medications at all or take it occasionally. They need to understand the impact of non–treatment or partial treatment, and must make it a habit of taking pills regularly and that is the key to hypertension management.

What are the complications of uncontrolled High Blood Pressure for long time?

Heart: Can cause heart attack, heart failure, irregular heart.

Brain: Stroke and depending on the area affected loss of vision etc.

Eyes: Bleeding, Loss of vision.

Kidneys: It may slowly go into kidney failure over a period of time unless regularly checked. If not detected early, some people with the condition may land up with regular dialysis, renal transplant.

What are the tests that may be advised if I have recent high Blood Pressure?

Physician may request the following Blood Tests: Complete Blood Count, Liver Function Test, Renal Function Test, rule out diabetes, serum electrolytes and Urine tests. ECG and Echocardiography. Chest X–ray (enlarged heart, heart failure, etc). These help to find out if there are any particular detectable causes of hypertension or its complications to manage holistically.

How is Hypertension treated?

Lifestyle Management (LSM) becomes an **"indispensable part"** of the management. LSM warranted before initiating anti–hypertensive treatment for most patients. LSM advisory include change in the eating habit, cut down on salt (bread, breakfast cereals are high in salt), do exercise and stop smoking.

Your doctor will decide on drug treatment viz diuretics, Calcium channel blockers, beta blockers or others.

How does the Blood Pressure Tablets work?

This depends on its mechanism by decreasing sodium content, effect on the heart. Dilatation of blood vessels improves heart function. Some act on the kidney by converting or blocking relevant enzymes. Some may need anxiety reduction tablets. Sometimes the drugs may be combined to address more than one mechanism. Choice

will be on individual basis, best discussed with your Doctor.

What are the Adverse Effects of Antihypertensive Medications?

Frequent monitoring will help in reducing side effects of the drugs. E.g., Sudden lowering of BP may cause giddiness, falls, increase or decrease in heart rate, swelling of the lower limbs. As some patients have other associated diseases they may also interfere with their control.

Should I tell other Doctors about my High Blood Pressure?

It is necessary to inform other doctors whenever you need their help. This will help them to know if there is any complications and help them prescribe additional tests necessary and coordinate the medications. More important when you go for surgery or any other medical procedure including dental procedures.

I am having High Blood Pressure for 25 years & should I stop medication?

Medication is never stopped. Your BP is under control because you are taking medicine and if you stop it will have a rebound effect. 3 or 6 monthly review by your doctor will help in good control. Discuss with your family Physician.

My husband has high blood Pressure for 20 years, and is forgetting to take medications. What should I do?

You have to design your own method to ensure regularity by frequent reminders, use of container in which you can load the tablet and keep in the dining

table. You can regularly check the remaining tablets in the container so that you can see how many he has not consumed. Also check the correct label, date of expiry of the drugs.

Misconceptions vs Reality:

1. **Hypertension is not a big deal as they don't feel symptoms mostly**

   Not true. Silently, high blood pressure damages kidneys, heart, eyes and nerves. Hence consult Doctor and monitor Blood pressure regularly.

2. **Hypertension or its complications cannot be prevented**

   Not true. Early diagnosis and treatment along with lifestyle changes can help in controlling high blood pressure.

3. **Treatment is difficult, once started on treatment we have to take it life long, so I shall postpone starting medicines!**

   Don't do it. Please consult your Doctor. Understand that High Blood Pressure doesn't have symptoms hence we will know only when it has caused damage. So please check BP regularly and take medicines as per Doctor's advice.

4. **Sometimes BP is recorded normal, so I am cured and stop medications on my own.**

   Don't do it. You need to consult your Doctor before stopping treatment. Never stop on your own.

You can follow strict diets, exercise adequately and can reduce stress, and thus age healthily. Once you are 60 years and above and have been found to be newly

hypertensive, remember one thing that you may not have any symptoms, but still your Blood Pressures could be high enough to damage your organs. Hence understand it is important to monitor BP, ideally home blood pressure monitoring is advised and frequent doctor visits are a necessity.

Advisory

- Weekly Recording of Blood Pressure
- Follow low salt, low fat, low carbohydrate diet.
- Reduce saturated fat to no more than 6% of daily calories and total fat to 27% of daily calories.
- Initially Add a vegetable or fruit serving at lunch and dinner, reduce oils and fats to half of what you are using now. Meat should be consumed as one meal of the day.
- Regular brisk walk for half an hour can help to reduce blood pressure.
- Maintain a diary of blood pressure readings and take it to your doctor when you visit. Do not stop medications on your own.
- The above will help you to avoid sudden hypertension related complications like stroke, heart attack, kidney failure etc.
- Avoid negative thinking, avoid recalling past negative events
- Try to be comfortable in all situations

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7

Healthy Skeletal Ageing; Bones and Joints

Dr Vijay A Kulkarni

Skeleton is the framework of the body. It is made up of individual units that is bones which come in different shapes and sizes. Connected to each other with ligaments and gliding against each other smoothly with the help of congruently articulating cartilage in turn forming joints which give us mobility.

Wrapped around the bones arising from one point on the skeleton to insert into another are the muscles which give us the strength and leverage to flaunt the mobility and functionality of an otherwise rigid skeleton.

Even the strongest built animals suffer weakness of bone and wear and tear of joints due to ageing. Skeletal ageing also happens with time as a very

natural physiological process. Skeletal ageing also gets affected by variables apart from time.

The most commonly encountered skeletal issues in elderly are fractures due to simple falls like a hip fracture. This scenario will be used to exemplify and discuss the causes problems impact and possible preventive aspects of effects of skeletal ageing.

Case scenario:

An 80–year–old elderly woman comes to the emergency with history of simple slip and fall in the bathroom following which she is not able to walk.

She has complaints of pain in right hip.

A trained orthopaedic surgeon or emergency physician notices that the right leg is short and rotated.

On x ray a diagnosis of fracture of the neck of femur is made. In other words, the ball of the hip is fractured.

Patient is evaluated for comorbid conditions like high sugars, high blood pressure and other ageing related issues.

Patient is operated after optimisation of fitness and the broken ball of the hip is replaced.

Patient is made to walk very next day after the surgery with support.

Issues

1) why did the patient fall?

Elderly patients have higher risk of falling, especially domestic (at home) mechanical falls. Studies have suggested that 40 to 50% of elderly aged over 80 fall at least once a year.

Leading causes of fall in elderly are

a) simple mechanical fall – a stumble leading to fall

b) age related neurological balance issues like parkinsonism or a mild stroke leading to the fall.

c) fluctuation of sugars (very high or very low sugars in diabetics) causing a fainting episode leading to the fall

d) electrolyte imbalance like decreased sodium levels leading to balance issues and a fall.

e) crooked knees like bow legs or knock knees in elderly due to osteoarthritis or wear and tear of joints can lead to buckling and fall

2) How is ageing directly related to the fracture in this patient?

As most of the people know broken hip in elderly is a common occurrence after a simple fall. The reason of such easy breakage or fracture of bones in elderly is due to severe weakness of bones called osteoporosis. This leads to weak points in the specific areas of bones causing risk factor of fracture in those areas. These fractures are called fragility fractures.

Common fragility fractures in elderly

a) fracture around hip joint

b) fracture at the wrist

c) compression fractures of the spine

d) fracture around the shoulder.

The list continues.

Cause for Concern and impact of patient and family

1) Physical stress – pain due to injury and surgery

2) **Psychological stress** – dependency of patient on the family and apprehension of fall again in the future

3) **financial stress** – the financial burden of the fracture in an elderly is considerably big on the whole family.

4) **morbidity and mortality** – a very high percentage of hip fracture patients suffer problems such as bed sores, pneumonia, deep vein thrombosis, etc and in some cases death ensues due to such complications.

How to Prevent Osteoporosis and Accidental Falls?

Osteoporosis in elderly is usually an identifiable loss of bone stock and structural integrity contributing to weak bones.

Preventive Measures for Osteoporosis; In Essence Healthy Bone Ageing

1) **maintain bone strength** – sedentary lifestyle in elderly has direct causal relation with weakness of bones. Repetitive muscular activity and exercises tend to main-tain bone strength. A programmed and individualized exercise routine tends to maintain bone strength.

2) **nutrition and medications** – an optimal Protein intake and Calcium and Vitamin D supply are of utmost importance to bone strength. With ageing ability to maintain mineralisation of bone and conversion of adequate Vitamin D decreases.

Supplementary Calcium and Vitamin D in the form of injections and oral preparations have shown promise in reducing osteoporosis in elderly.

Medications like bisphosphonates, calcitonin teriparatide have been used with good results in increasing bone density in elderly. Do talk to your Doctor about these options and seek advice.

How to Prevent Falls?

Statistically a fall in elderly individual leading to fracture would also mean increased risk of further fall and decreased activity level due to fear of fall. Prevention of fall will essentially be addressed by maintaining good Musculo–skeletal strength by exercises and addressing the causes of fall like balance issues and low sugars and stroke.

Early identification and treatment of senility associated neurological problems like Alzheimer's and Parkinsonism can decrease neurological causes of fall. Maintaining optimal sugar levels with the help of the Physician or Diabetologist will definitely decrease chances of fall.

One very crippling skeletal problem in elderly individuals is osteoarthtritis of knee causing the knees to hurt in turn causing limited mobility contributing to muscle and bone weakness. Also, this condition causes deformities like knock knees and bow legs in elderly.

Prevention or slowing of osteoarthritis can be achieved by maintaining healthy lifestyle and keeping the weight in check.

In case of already ensued osteoarthritis a total joint replacement of knees provides pain relief, deformity correction, scope for exercise and activity like walking in turn increasing bone strength and preventing falls.

Take away Message:

Healthy bone ageing involves active lifestyle preferably from younger days which translates to healthy ageing of bone and joints. Maintaining good heath and keeping age related issues like diabetes, hypertension in check. Periodic consultations with physician for assessment of bone strength optimal control of comorbidities like diabetes. Diet and medications and supplements for bone strengthening on physicians advise if required.

If even after all precautions there is a fall an attempt to mobilise the elderly should be promptly made either with surgical approach or physical therapy or both as per the protocols.

MOVEMENT IS LIFE is a philosophical outlook of Jules Verne.

Even in healthy ageing of bones and skeletal system in general movement/ exercise/activity provides strength and definitely helps in graceful ageing of an individual and gives beauty to the process of ageing mind and body.

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Whoever, in middle age, attempts to realize the wishes and hopes of his early youth, invariably deceives himself. Each ten years of a man's life has its own fortunes, its own hopes, its own desires.

–Goethe

8

Heart Health

Dr Vikram Kolhari

Heart attack is the most common cause of death worldwide, followed by cancer, and accounts for roughly 12 million deaths yearly. During last few decades, there has been an alarming increase in incidence of heart attack in developing countries including India. Around 25% of deaths are due to heart attacks.

Indians are at a higher risk –

- Indians are more susceptible to heart attack
- Disease occurs at a much younger age (a decade earlier than the western population)
- Disease is more severe and has a higher tendency for a repeat heart attack and carries a higher death rate.

Commonly used terms:

- **What is Heart?**

  It is basically a muscle pump which provides blood supply to all body parts, including itself. It pumps 4–5 litres of blood every minute at rest.

- **Heart Attack (Myocardial Infarction):**
  - A heart attack occurs when coronary artery, which supplies blood to heart becomes blocked. When blood supply is cut off, the heart muscle begins to die. Myocardial infarction literally means tissue death (infarction) of the heart muscle (myocardium).
  - **Heart Failure:** Heart failure is a condition in which the heart doesn't pump enough blood to meet the requirements of all organs, leading to breathing difficulty, fatigue and weakness, swelling of legs. Most common causes for heart failure are heart attack and high BP.
  - **Cardiac Arrest:** It is the abrupt loss of heart function, i.e heart stops pumping, which if not treated early leads to death. Cardiac arrest is not the same as heart attack, however, a heart attack can sometimes lead to cardiac arrest.
  - **Atherosclerosis:** As we age, fatty deposits called plaques develop within the walls of the blood vessels. The lumen of the artery becomes narrow. This is atherosclerosis
  - **Coronary artery disease:** When atherosclerosis develops in the coronary arteries, which supply blood to heart, it is called coronary artery disease, which can eventually lead to heart attack.

How the Heart Changes with Age

With ageing, we are more likely to suffer from heart attack, stroke or heart failure. Heart disease is a major cause of disability in the elderly and impacts the overall wellbeing.

Certain changes do occur in our heart and blood vessels with ageing. For example, as we get older, our heart rate does not increase proportionately with physical activity.

The large arteries become stiff or hardened, which leads to hypertension.

With advancing age, the risk of developing atherosclerosis also increases. Insulin resistance, Diabetes and obesity increase with age. The heart muscle can become weakened, resulting in heart failure.

- There are age–related changes in the **electrical system of the heart** that can lead to rhythm abnormalities —a fast, slow, or irregular heartbeat. Valves—present between the cardiac chambers, allow the blood to flow forward and prevent it from regurgitating backwards (act as a one way stop–cock)— become thickened and calcified with age, which restricts the blood flow out of the heart and may allow regurgitation, both of which can cause heart failure.
- The **cardiac chambers may increase** in size, along with thickening of walls, so the actual amount of blood that a chamber can hold may be less inspite of increase in overall size of heart. There is restricted filling of the heart. Increased chamber size and thickness can predispose to development of atrial fibrillation, a common rhythm disorder.

Risk factors for Heart attack:

Major Non modifiable risk factors :

- **Age** – Men > 45 & Women > 55
- **Sex** – Males are more likely to have a heart attack compared to females, especially at an earlier age.
- **Heredity (including race)** – People with strong family history are more likely to have heart attack and hence need to control their risk factors more aggressively.

Major modifiable risk factors:

Tobacco – Tobacco use in any form predisposes to coronary artery disease. Cigarette smoking increases the risk of sudden death in patients with coronary heart disease. Cigarette smoking also increases the risk of stroke, cancers, COPD (lung disease) and peripheral artery disease. Passive smoking also increases the risk of heart attack.

Smoking leads to high blood pressure, low HDL cholesterol, damaged arteries and blood cells, leading to clotting and increased heart attacks

High blood cholesterol – Cholesterol is a part of body cells and serves a vital function. As the blood cholesterol rises, so does the risk of coronary heart disease.

Sources of cholesterol in the body:

1. **Diet** – contributes to 35% of total cholesterol. Foods that contain cholesterol are rich in saturated fats also.

   Dietary sources –

   Dairy foods such as cheese, yogurt and cream.

   Animal fats such as butter, ghee, margarines and

spreads made from animal fats. Fatty meat and processed meat products such as sausages.

There is definitive evidence that saturated fatty acids and trans–fats increase the risk for coronary heart disease. Since dietary cholesterol is common in foods that contain saturated fats, such foods are atherogenic.

2. **Cholesterol** produced in our body by liver and other cells contributes to 65% of total cholesterol.

Good vs. Bad Cholesterol:

- **LDL cholesterol** is known as bad cholesterol. It increases the risk of heart disease. LDL cholesterol is a major component of the atherosclerotic lesions that cause heart attack.
- **HDL cholesterol** is known as the good cholesterol. It is higher in women, increases with exercise. HDL cholesterol helps to carry the bad cholesterol out of arteries and prevents the blockages.

High Blood Pressure:

Hypertension puts stress on the heart and increases its workload. The heart muscle becomes thickened and stiff. Hypertension predisposes to heart attack, stroke, kidney diseases and heart failure. The presence of other risk factors like tobacco, obesity, high cholesterol, diabetes in hypertensives greatly increases the risk of cardiovascular disease.

Physical Inactivity:

Sedentary lifestyle is an important risk factor for coronary heart disease. Regular exercise for 30–45 minutes daily on most days of the week reduces the risk of

cardiovascular disease. Physical activity reduces cholesterol, blood sugars and body weight and helps to control the blood pressure.

Obesity:

People who are obese – especially abdominal obesity – are predisposed to develop heart attack and stroke, even if other risk factors are absent.

Diabetes:

Research has shown that diabetics are more likely to die of a heart attack than a non–diabetic. Roughly 2/3rd of diabetic patients aged > 65 years die due to some form of heart disease and 15% die of stroke. Diabetes increases the risk of heart disease even when sugars are controlled. However, uncontrolled blood sugar is a major health hazard.

Other contributory factors:

Stress:

In the current urbanized society, mental stress is an important but unrecognized risk factor for cardiovascular diseases. It is one of the major contributors for heart attack in younger population. If not adequately emphasized and corrected, stress and depression can impact the quality of life significantly. Frequent worrying, frustrations, insecurity, financial and interpersonal problems are the common cause of stress.

Alcohol:

Excessive alcohol consumption can increase blood pressure, may lead to cardiomyopathy, obesity and also liver damage. It can also contribute to dyslipidemia and increase the risk of arrhythmias, especially atrial

fibrillation. However, moderation of alcohol consumption (men <2 drinks/day, women <1 drink/day) increases good cholesterol (HDL). But it is not advisable for non–drinkers to start using alcohol.

Symptoms of Coronary Artery Disease:

- No symptoms for long period
- Chest pain on exertion also known as Angina
- Myocardial Infarction or Heart attack – Severe chest pain, death of heart muscle, heart failure, irregular heart beats
- Sudden Death

What is Angina?

Discomfort in the center of the chest, described as pressure, squeezing, heaviness, fullness, burning sensation or pain, generally not localized, which comes with exertion and is relieved with rest, may be associated with sweating and the pain may radiate to the left arm. Heart attack is the most severe form of angina, present at rest and associated with impending sense of doom.

However, atypical presentations are not uncommon. About 10–20% of heart attacks are painless, especially in diabetics and elderly. Patients may develop symptoms like breathlessness, left arm pain, pain in back, neck, jaw or stomach, excessive sweating, nausea or lightheadedness. Many a times, symptoms are confused with gastritis and leads to delay in seeking medical help.

Tests/ Investigations:

1. **ECG** – An ECG records the electrical activity of the heart at rest. It provides information about heart rate and rhythm, heart chamber enlargement or

evidence of a heart attack. However, exercise or stress ECG is required to detect asymptomatic blockages. ECG is one of the basic tests to diagnose heart attack, however in almost 25% of cases, initial ECG may be normal and serial ECG monitoring may be required for diagnosis.

2. **Cardiac enzymes** – These enzymes are released into blood when heart muscle death occurs, as seen in heart attack. Blood tests to detect CPK–MB and Troponins are commonly used for diagnosing a heart attack. Troponin test is considered the gold standard. It gets elevated after 3–4 hours of heart attack and remains elevated up to 14 days.

3. **Echocardiogram** – It is a nothing but ultrasonography of heart and gives information about the structure and functioning of heart. An echocardiogram helps to diagnose:
   - Increased heart size
   - Weakened heart muscles
   - Evidence of heart attack
   - Leakage or stenosis of heart valves
   - Congenital heart defects
   - Blood clots or tumors

4. **Stress test** – It is done to detect coronary artery blockages in patients with doubtful or no symptoms. Typically, person is made to walk on a treadmill and ECG is recorded simultaneously. While exercising, the oxygen demand of the heart is increased and if there is an underlying blockage, this increased demand cannot be met and ECG changes of ischemia will appear. There are other tests like stress echo

or stress thallium scan which serve the same purpose.

5. **Coronary Angiogram** – This is the definitive test to detect coronary artery blockages. It allows direct visualization of heart's blood vessels (coronary arteries) by injecting a dye under X–ray guidance.

Treatment of Heart attack:

Importance of Golden hour: In the event of heart attack, the first 60 minutes are decisive, and this time is therefore referred to as the "golden hour." The heart muscle starts to die within 80–90 minutes of cessation of blood supply, and within six hours, there can be irreversible damage. The concept of golden hour is very important as most of the complications of heart attack including death occur during this period. However, if the person is treated within this period, there is near–complete recovery. The Golden Hour is a window of opportunity that impacts a patient's survival and quality of life following a heart attack. So, the earlier we establish the blood supply to the heart, more likely that the patient will survive.

Primary Angioplasty and Stenting: Primary angioplasty and stent placement is the treatment of choice for acute heart attack worldwide. Once the diagnosis of heart attack is made, angioplasty and stenting should be done at the earliest, preferably within the golden hour. Initial medications such as blood thinners (like aspirin), statins are given in the emergency room and patient is shifted to Cath lab for Angiogram (to know where and how much is the blockage) followed by angioplasty to open the blocked artery and re–establish

the blood supply to heart. In some cases, Bypass Surgery (CABG) may also be required.

Primary angioplasty involves dilating the narrowed areas of the coronary arteries using a balloon followed by placement of a stent. The procedure is usually done, under local anesthesia, by puncturing an artery in the groin or wrist. A metal stent (drug coated) will be placed in the blocked segment of the coronary artery to prevent the recoil. Artery layer develops over the stent in due course of time and it becomes part of the body, patient will not be aware of its presence.

Can we prevent a Heart attack?

It is interesting to note that majority of premature heart attacks and strokes are preventable. Lifestyle changes, a healthy diet, regular exercise, and avoiding tobacco are the keys to prevention. Checking and controlling the above mentioned risk factors is very important for prevention.

Eat a healthy diet: A balanced diet is crucial for a healthy heart. This should include plenty of fruits and vegetables, whole grains, lean meat, fish and pulses with restricted salt, sugar and fat intake.

Regular physical activity: At least 30–45 minutes of exercise daily helps to maintain cardiovascular fitness. Regular exercise helps reduce the body weight, increases HDL, decreases LDL cholesterol and improves insulin resistance.

Avoid tobacco use: It is the single most important intervention which can reduce the risk of heart attack and increase the longevity. It is advisable to quit smoking

at once and at the earliest. Once a person quits smoking, the risk of heart attack becomes almost equal to that of a non–smoker within 2 years.

Control of blood pressure: Blood pressure needs to be checked regularly as hypertension usually does not produce any symptoms and more than half of the patients are unaware of its presence. Salt restriction, regular exercise and medications as advised by the doctor are essential to control the blood pressure (<140/90).

Control of cholesterol: 10% reduction of blood cholesterol produces 20–30% reduction in heart attack related deaths. Blood chlesterol needs to be checked regularly and if high, needs to be controlled through lifestyle changes, healthy diet, exercise and appropriate medications.

Control of Diabetes: Controlling blood sugars is of utmost importance and goes a long way in preventing heart attack. Blood sugars need to be regularly checked and treated by lifestyle changes and appropriate drugs to achieve the target HbA1C of 7%.

Stress: Avoiding mental stress, Yoga, meditation and professional help as and when required is equally important in prevention of heart disease. Avoid worrying, Feel contented. Reduce your desires. Best lead a simple life. Harbour positive thinking. Simple religious/ spiritual practices could also reduce the stress.

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9

Lung Health

Dr Kalpana Chandra

Introduction

Ageing is responsible for various structural and functional changes in the respiratory system. Alterations in normal functioning of the lungs is associated with decline in exercise capacity as well as occurrence of different diseases. Let us understand the issue in greater detail.

What are the Age associated changes in Lung Structure and Function?

Ageing impacts the structure and functions of lungs as follows:

A. Changes in Lung Structure

There are three changes in lung structure in the elderly:

1. **Loss of elasticity:** Lungs are able to expand while we breathe in (inflation) and contract when we

breathe out (deflation) as they are composed of elastin and collagen. With ageing, there is loss of elastin which leads to poor deflation and consequently, lungs become voluminous and rounded in shape. Further, with ageing there is an increase in number of crosslinks between the various subunits of collagen leading to increased rigidity of lungs.

2. **Bony changes:** Due to ageing there is calcification of joints of ribs, breast bone and vertebral column, resulting in decreased chest expansion.

3. **Respiratory muscle changes:** With ageing there is decreased muscle strength and atrophy of muscles of chest and ancillary respiratory muscles.

B. Changes in Lung Function

There are two fundamental age–related changes in lung function in the elderly

1. Reduced ability to inhale and exhale completely leading to air trapping in the lungs.
2. Decline in Diffusion Capacity: With age, there is a gradual decline in gas exchange and blood flow (perfusion) of the lungs leading to decrease in capacity of the lungs to transfer inspired oxygen to blood i. e. reduced diffusion capacity.

Which other factors contribute to Lung Health and Disease in Elderly?

Apart from ageing, many other factors also influence functioning of the lungs.

1. **Decreased exercise**: Apart from age associated decline in exercise capacity, sedentary life style, reduction in daily activities (both instrumental

activities of daily living (IADL) and activities of daily living (ADL) result in reduced gas exchange in the lungs.

2. **Disturbed sleep:** Difficulty in onset of sleep, maintenance of sleep, early morning awakening and non–restorative sleep all contribute to respiratory muscle fatigue along with adverse impact on respiratory centres in the brain.
3. **Altered gastrointestinal motility:** Regurgitation of food and acid is associated with risk of aspiration pneumonia.
4. **Impaired defence mechanisms** and reduced disease fighting ability (immunity) can also lead to various infections of lungs in the elderly. In addition, impairment in cough reflex with inefficient clearance of aspirated particles, results in discomfort, foreign body sensation and super–added infections.
5. **Exposure to Air Pollution:** There are cumulative adverse effects of exposure to occupational and environmental dusts and noxious gases on lung health.
6. **Tobacco smoking:** is the commonest and avoidable cause of lung injury and diseases like obstructive airway disease and lung tumours.
7. **Non–Communicable Diseases (NCDs):** like diabetes, high blood pressure and certain cardiovascular and neurological diseases also impact lung function adversely.

What are common Lung Diseases in the Elderly?

The common lung diseases in the elderly may be classified as

A. Infectious Lung Diseases

1. Pneumonias
2. COVID 19
3. Tuberculosis

B. Non–Infectious Lung Diseases

1. Chronic obstructive pulmonary disease
2. Bronchial Asthma
3. Lung tumors
4. Aspiration
5. Obesity hypoventilation syndrome
6. Sleep apnea syndromes

A.Infectious Diseases

A.1. Pneumonias

These are most common respiratory infections. Common symptoms are fever, malaise, fatigue, weakness and cough with or without expectoration. Occasionally blood–streaked expectoration may also be present. Pneumonias can be caused by a range of microorganisms like bacteria, viruses, fungi (in patients with reduced immunity like diabetics).

Treatment of pneumonia is with appropriate antibiotics, steam inhalation, proper hydration and adequate nutrition.

A.2. COVID–19

Due to the current **COVID–19** Pandemic, this segment is being described in greater detail.

COVID–19 is a novel coronavirus and is also called Severe Acute Respiratory Syndrome Corona Virus 2 (SARS–CoV 2). COVID–19 results in complete spectrum of respiratory illness ranging from mild cough and cold to life threatening pneumonia and respiratory failure.

The elderly with comorbidities such as COPD (Chronic Lung diseases), Diabetes, High blood pressure, obesity, chronic liver and kidney diseases and those on immune suppressants are at high risk for COVID 19 and more severe illness.

The common symptoms of COVID19 are fever, shortness of breath, cough and fatigue. The other symptoms are sore throat, running nose, nasal congestion, loss of smell and taste, muscle pains and chills associated with shaking.

COVID–19 remains suspended in droplets in air and survives on surfaces for a long period of time. The spread of infection is through exposure to droplet infection in the form of inhalation of infected aerosol as well as contact with a person or a surface contaminated by COVID–19. The virus is very contagious and has an incubation period between two to fourteen days. Of late air borne transmission has also been postulated as mode of transmission.

COVID–19 in elderly can be a life–threatening illness as the infection begins in small areas of lungs and then spreads rapidly like wildfire. COVID–19 pneumonia also lasts longer than other pneumonias. The virus damages the lung tissue and causes multiple organ dysfunction and fall in blood pressure.

Diagnosis is by detecting the virus in samples taken from nose and throat and analysed through RT PCR. X–RAY Chest, CT scans of lungs and blood investigations.

Treatment is by oxygen therapy and mechanical ventilation in case of respiratory failure. In case of secondary bacterial infection antibiotics are used. The recommended target oxygen saturation range for patients

with COVID–19 is 92–96%. It is advised to monitor for oxygen saturation and may need hospitalisation if the oxygen saturation starts falling. Elderly persons may require also hospitalization if they develop breathing difficulties, confusion, drowsiness, chest pain, palpitations and bluish discolouration of lips. Most patients recover from COVID–19 provided they do not delay investigation and treatment after experiencing symptoms and if they follow appropriate treatment as advised.

In some cases, there may be long term effects due to lung scarring and breathing difficulties may continue even after recovery from COVID19 pneumonia.

A.3. Tuberculosis

Older people are especially vulnerable to Tuberculosis. Tuberculosis in the elderly may be due to reactivation of previous tubercular infection (previously dormant focus) or fresh infection due to reduced immunity. The common symptoms are low–grade fever, malaise, sputum production, occasionally with blood, loss of appetite and weight. Tuberculosis in the elderly is a serious disease and may spread to other organs too. Common investigations include Chest X–ray and Sputum test (for AFB).

Tuberculosis in the elderly is treated with Anti Tubercular Treatment (ATT). ATT has defined regimes including both first– and second–line drugs. The regimen for ATT must be strictly adhered to prevent treatment failure and treatment resistance to first and later second line drugs. Government of India provides free ATT under its Directly Observed Treatment Strategy (DOTS) programme.

B.Non–Infectious Diseases

B.1. Chronic Obstructive Pulmonary Disease (COPD)

COPD begins in the middle age and progresses over time. It is commonly seen in smokers which includes those using cigarettes, beedis, hookahs etc. In addition, exposure to air pollution (occupational and environmental dusts and noxious gases as well as household air pollution due to use of biomass fuels) can also contribute to COPD. The most common symptom is breathlessness which may occur with mild exercise or rest. Further, recurrent infections increase morbidity. If there is associated obesity, there is increased work of breathing and further respiratory weakness.

The first step in COPD management is strict cessation of smoking and tobacco use in any form. Treatment includes use of bronchodilators (inhalers, nebulised forms and oral tablets) and expectorants. Prompt treatment of concomitant infections is also required. Domiciliary oxygen also goes a long way in improving quality of life. Chest exercises to strengthen respiratory muscles helps in mitigation of symptoms of breathlessness.

B.2. Bronchial Asthma.

It rarely starts de–novo in old age and is usually attributed to pre–existing bronchial asthma from young age. Bronchial asthma in the elderly is poorly tolerated.

Asthma is treated with nebulization with bronchodilators and agents to clear mucus. Steam inhalation is helpful in relieving symptoms. Coexisting infection is managed by appropriate antibiotics.

B.3. Lung Tumours

In the elderly lung tumours can arise primarily in the lungs or there can be secondary involvement due to spread of tumour from other parts of body such as breast, genital and reproductive and gastrointestinal tract and prostrate. Primary lung tumours commonly occur in sixth and seventh decade of life.

B.4. Pulmonary Aspiration

Aspiration occurs due to disturbances in gastrointestinal motility in semiconscious and unconscious persons and results in pneumonia.

B.5. Obesity Hypoventilation Syndrome

In elderly with severe obesity, laboured breathing occurs during activity with daytime drowsiness and sleep apnoea. There are periods of complete cessation of breathing followed by increase in rate of breathing and snoring resulting in increased carbon dioxide and reduced oxygen levels in the blood.

B.6. Sleep Apnoea Syndrome

Both central and obstructive sleep apnoea are common in elderly and are due to hormonal and neuromuscular changes, reduced blood supply and decreased responsiveness of the central respiratory centres.

How are Lung Diseases Diagnosed and Treated in General?

All the lung diseases require diagnosis and management by specialist physician or chest physician. Investigations include X–Ray Chest, CT Scan, blood tests, sputum examina-tion, lung function tests and sleep studies. Occasionally, invasive tests such as biopsy and

bronchoscopy may be required. With advances in medical science, most lung disease have evidence– based treatment and good outcomes. Steam inhalation, nebulisation and chest physiotherapy are additional modalities apart from oral and injectable medications. Some-times, treatment in the elderly is challenging as the elderly may have poor tolerance to drugs with increased risks of drug toxicity. Specific treatments have been described earlier.

What are Prevention Strategies to maintain Lung Health?

There are several strategies for maintaining lung health in the elderly.

1. **Tobacco cessation:** is the most important step in improving lung health. Tobacco cessation should be implemented regardless of previous duration of smoking. Within a few minutes after quitting tobacco heart rate reduces, in a few days carbon monoxide levels decline to that of non– smokers and over the next one year the symptoms of coughing and breathlessness decline progressively. Stopping tobacco improves lung and cardiac functions, reduces worsening of COPD, reduces risk of cancers and enhances general health.
2. **Balanced diet appropriate** for nutritional needs of the elderly can enhance immunity and also reduce obesity which also compromises lung function.
3. **Age–appropriate exercise:** is essential for improving aerobic capacity and lung functions
4. **Breathing exercises and Pranayama:** help in improving lung expansion and deflation thereby

improving gas exchange. The regulation of breathing cycle also improves exercise tolerance and maintains lung health.

5. **Rest:** It is important to recognise that the exercise and work capacity of elderly progressively declines as part of ageing. While exercise is beneficial, the elderly should also schedule regular rest as part of their daily routine to prevent excessive exertion.
6. **Sleep Hygiene:** refers to simple strategies to promote natural sleep, establish natural sleep–wake cycle and not to depend on sleeping pills.
7. **Regular treatment of underlying lung diseases:** is important to prevent worsening of lung functions and super added infections.
8. **Regular treatment of NCDs:** is important not just for general well–being but also to prevent adverse effects of NCDs (Hypertension, Diabetes) on lung function.

The elderly, often, neglect their symptoms and avoid investigations especially invasive investigations. Regular treatment implies regular consultation and follow up with treating specialist, compliance with advised investigations and adherence to prescribed treatment. If more than one specialist is treating any patient, it is important that the prescriptions of all specialists are shared with each other to prevent duplicate prescribing of same drugs and drug interactions between drugs prescribed by different doctors.

Conclusion

Ageing is a part of natural human cycle. While people are living longer with advances in medical science

and better nutrition, it is equally important that people maintain lung health in old age. Implementation of preventive strategies as well as prompt diagnosis and treatment can reduce morbidity and ensure wellbeing.

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It's not that age brings childhood back again,
Age merely shows what children we remain.

–Goethe

Old age, believe me, is a good and pleasant thing. It is true you are gently shouldered off the stage, but then you are given such a comfortable front stall as spectator.

–Jane Harrison

Old age equalizes—we are aware that what is happening to us has happened to untold numbers from the beginning of time. When we are young we act as if we were the first young people in the world.

–Eric Hoffer

When grace is joined with wrinkles, it is adorable. There is an unspeakable dawn in happy old age.

–Victor Hugo

10

Health in Elderly Women

Dr Chandrika Anand

What is menopause and what are its symptoms? When to consult the doctor?

A woman is said to have attained menopause when she stops having her regular cycles at least for a year. The menstrual periods generally begin to become less in frequency over a few months or years' time, before they stop altogether. This period of time is called peri–menopause. As the oestrogen levels gradually decrease, eventually stops, then there is menopause. Generally, this happens between the age of 45 and 55 years. Most women can now expect to live at least 1/4th of their lives in menopause, therefore more and more interest has been given to the better approach of this period of women life. Menopause bring with it unique

challenges and if one is prepared to handle the physiological and psychological changes of menopause it would go a long way in ensuring good quality of life.

The menopausal symptoms include hot flushes, mood swings, headache, generalised weakness which can be mild and need no treatment. Some symptoms like sleeplessness, dry vagina, irritability, difficulty concentrating, decreased sexual interest, mental confusion, urinary disturbance, depression, etc. can be disabling, reducing the quality of life and leading to social impairment and work–related difficulties. In such case it is advisable to consult a gynaecologist.

What are the problems associated frequently in elderly women?

Oestrogen is an important hormone produced during the reproductive age which helps in various other ways such as protecting the heart, bones and has an impact on memory. As women attain menopause the protective effect of oestrogen is reduced resulting in increased risk of cardiovascular diseases and osteoporosis (decreased bone strength). Osteoporosis, prolapse of the uterus, incontinence, depression and mood change, uterine cancer, breast cancer and arthritis are some of the most frequent problems encountered by elderly women. Then there is also increase risk of Diabetes Mellitus, Hypertension, High Cholesterol with age. A healthy lifestyle and regular treatment would go a long way in preventing the complications seen with these disorders. Though not conclusively proven, some studies have suggested a probable link between decreased oestrogen and increased risk of Alzheimer's disease and cognitive impairment.

What is this Hormone Replacement Therapy or the HRT?

The Hormone replacement therapy (HRT) is treating menopausal women who have severe symptoms not improving with lifestyle changes. HRT restores normal Oestrogen levels which affects female physiology, bone density, skin temperature and cardiovascular health.. It is a reduction in the release of oestrogen that causes most of the symptoms associated with the menopause, that includes: hot flushes (feeling warm in upper body all of a sudden), night sweats, vaginal dryness, loss of libido (ie, reduced sex drive), stress incontinence (this means leaking of urine when you cough or sneeze), bone thinning that can cause fractures.

Most of the above symptoms of menopause will pass within 5 years, although vaginal dryness could get worse. Lubricating creams and gels may help. Stress incontinence (leaking of urine during stress) and the risk of osteoporosis (thinning of bones due to loss) are likely to gradually increase with ageing. However, taking oestrogen alone as HRT on its own increases the risk of cancer of uterus. However, if a woman has had a hysterectomy (uterus removed), she may not need progesterone hormone and so, she can take oestrogen–only HRT.

How to use HRT? What are the treatments available for local application?

HRT is available in the form of tablets, patches or implants. Tablets can be taken by mouth or also available in the form of a patch that is stuck on the skin; It is also treated in the form of an implant, where small pellets of oestrogen are inserted under the skin of abdomen, buttock or thigh under local anaesthesia that is released regularly.

Also, Oestrogen in the form of a gel is applied to the skin that gets absorbed. There are many different combinations of HRT, and advise of gynaecologist would be helpful in choosing the right one. If a woman is only experiencing vaginal dryness, her gynaecologist will probably recommend oestrogen only preparations that can be directly applied to the vagina. There are also local oestrogens that can be used as so–called pessaries that is placed directly into the vagina, as a vaginal ring or vaginal creams.

Who cannot use HRT? What are the side–effects of HRT?

HRT may not be suitable in case of women who has had breast cancer, cancer of either ovary or Uterus, has had history of blood clots, lady with a history of heart disease or stroke, untreated prolonged high blood pressure or even liver disease. Therefore, HRT is best discussed you're your gynaecologist. You must also be aware that the hormones used in the HRT can have associated side effects like fluid retention that can cause swelling in the legs, bloating leading to discomfort in the tummy, tenderness of breasts or swelling, even bleeding through the vagina etc.

How to decide whether to take or not take HRT?

HRT alleviates most of the troublesome menopausal symptoms and improves quality of life and feelings of well–being. HRT can also reduce a woman's risk of thinning of the bones (osteoporosis) that is a risk factor of fractures. However, its long–term use is not regularly recommended and benefits and risks must be discussed with the gynaecologist who will be able to advice you whether this treatment may be suitable for you or not.

Uterine Cancer, Breast Cancer; How to identify, get screened and treated?

The risk of certain cancers such as uterine cancer unfortunately increases with age. Cancer cervix affects women in reproductive age more than the menopausal women. Any bleeding following menopause might be a warning sign of endometrial cancer and hence one must soon consult a gynaecologist.

Breast cancer is the most common cancer among women. More than half breast cancer diagnoses are picked up in women age over 60 years. One of the screening processes for breast cancer, a mammogram, which is essentially an X–ray of the breast area, that will help identify any abnormal swelling or masses or tumours that cannot be seen or felt on the surface of the skin.

World Health Organisation (WHO) recommends perfor-ming mammography once in every 1–2 years for women aged 50–69 years. Periodic self–examination is also important and it is advisable to consult doctor at the earliest in case you notice any lump. There are a range of treatment options for breast cancer depending on the study of the extent of the invasiveness that assists in staging following which treatment guidelines including surgery, radiotherapy and chemotherapy are offered.

What is osteoporosis and how to improve bone strength?

Osteoporosis is a condition that weakens bones making then thin, making them fragile that is more likely to break with lesser force. The risk factors for osteoporosis include premature (before the age of 40) or early (before the age of 45) menopause, if anyone in the family had history of osteoporosis, has been smoking, has been

consuming alcohol in excess, reduced dietary intake of calcium and hardly doing any weight bearing exercise. It is best to avoid excess caffeine by limiting amount of tea or coffee intake; doing regular weight bearing exercises such as walking and consuming a healthy well–balanced diet that is rich in calcium, e.g., from dairy products, green leafy vegetables benefits bone health. HRT prevents bone loss and thus it reduces the chances of fracture, and therefore has a definite role in preventing the osteoporosis in women with premature menopause (< 40 yrs age) and also in women with severe menopausal symptoms.

Urinary problems; Under–reported quite often

Although many women may feel embarrassed talking to someone about your symptoms, it is a good idea to see a gynaecologist, as a first step towards finding a way to sort out the problem. The common urinary related problems in elderly women include passing urine more frequently during both day as well as night, feeling discomfort on passing urine, symptoms that are related to urinary infection, leakage of urine with reduced control leading to feeling embarrassment, vaginal dryness causing discomfort, burning sensation and also itching. Also, these symptoms are thought to be part of ageing and could be under–reported may be due to fear of embarrassment and hence under–treated; But these can interfere with woman's' mental wellness too. Local oestrogen preparations such as vaginal tablet, creams, or vaginal ring can be very helpful in relieve all most of the complaints and suffering, and therefore woman need not suffer in silence and must discuss with their gynaecologist at the earliest. Non hormonal vaginal moisturizers can also be used.

Conclusion

The time of menopause can be considered as a change in life and as an opportunity to reappraise health and health–related behaviour patterns and make changes in them. Regular exercise, healthy eating habits including adequate amount of calcium and vitamin D (you may discuss with your family Doctor if concerned), meditation, quitting smoking and annually visiting a doctor would resolve most of the issues. Elderly women undergo intense changes and experience annoying symptoms which needs help from both the family and health services. The best way to manage it is with good counselling to understand the changes they undergo and treatment to address the issue.

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So different are the colours of life, as we look forward to the future, or backward to the past; and so different the opinions and sentiments which this contrariety of appearance naturally produces, that the conversation of the old and young ends generally with contempt or pity on either side.

–Samuel Johnson

Old age is not a disease—it is strength and survivorship, triumph over all kinds of vicissitudes and disappointments, trials and illnesses.

–Maggie Kuhn

11

Depression and Anxiety

Dr Preeti Sinha

Case Vignette

A 70–year–old man lost his wife a month back after taking care of her in bed–ridden state for more than 2 years. He performed last rites and later rituals as expected. However, for last 2 weeks, his son saw a gradual change in him. He has become overconcerned for his health and asked again yesterday for a doctor's visit, though the doctor reassured him last week only about his good physical health. He has reduced his food intake since his wife passed away and his daughter–in–law has noticed him crying alone with his wife's picture. Son feels sometimes that he should be shown to a psychiatrist, the man outrightly rejected this offer saying that his mind is absolutely working fine. He was very upset that his son felt that he had gone mad.

Case Discussion

The above case vignette might have arisen one or more of the following questions. I hope that by the end of this chapter, you would get reasonable clarity about them.

- Does this gentleman need help and support of a psychiatrist? If yes, what does he have? Depression, health anxiety or something else?
- Isn't health anxiety a normal phenomenon?
- Do older adults have depression? Isn't it a normal part of ageing as some kind of health issue or loss does happen in ageing, which would make the older adult a bit sad?
- What are risk factors of depression and anxiety?
- Is depression in older adult different from that in younger adult? What if depression is not treated in elderly?
- What is the association between depression, ageing and dementia?
- Or, are these issues just due to recent loss of life–partner and would be gradually better with time? Can a person also need consultation of a mental health professional for grief?
- How can someone force his/ her parent or uncle/ aunt to go to psychiatrist when they don't want?

How common are anxiety and depression in elderly people?

Unlike what many people think, elderly person often feels anxiety and depression. And in many situations, it can reach the level of an anxiety disorder or a depressive disorder and then the help of mental health professional

would be required for recovery. In fact, depressive disorders are more common in older adults than younger adults. Among 100 older adults, 3–5 of them may have a depressive disorder at one point of time and should seek professional help. This number can range from 7–15% if we count for whole life. Anxiety disorders are probably as prevalent in older adults as in younger population; again, it would be around 3–4%.

Presentation of Typical Clinical Depression/ Depressive Disorder

Every one of us feel sad and depressed at some point of our life. If feeling of sadness is associated with one or more of the following features, then it may suggest that the person's feeling of depression has taken the form of a depressive disorder and needs psychiatric consultation.

- Low mood is present throughout the day
- Unable to enjoy the activities and have fun as before
- Feeling tired throughout the day
- Doesn't want to mingle with others; prefers to be alone
- Having negative thoughts about self and/ or future
- Feelings of guilt and shame about past mistakes/ wrong decisions

There are further hints, which should be considered as "Red Flags" and definitely not to be ignored especially, if more than one of the them are present.

- Lasting continuously for many days
- Affecting Sleep, Food intake and self–care

- Hampering regular household/ job related work
- Thoughts of dying or committing suicide

Differences from young age depression

Though older adults may have similar presentation of depressive disorder, there are some unique characteristics of old age depression. These are more often seen in situation where depressive disorder occurs for the first time in old age only.

- Anxiety more than sadness
- Very irritable, which is more than usual nature of before
- Becoming restless; keeps on pacing at home
- Too less physical activity (Mostly lying on bed)
- Increase in disturbance in sleep
- Frequent complaining of forgetfulness and quite concerned about it
- Marked Increase in preoccupation with one aspect of health; Unsatisfied with doctor's inference of normalcy; multiple somatic complaints;
  - Digestion, Constipation
  - Urination
- Worsening of existing medical illness
- Thoughts in some way related to "Negation of existence of one or more aspect" such as
  - Food
  - Body parts
  - Money/ property
  - Whole world

Ageing comes with events which can be stressful

- Financial Stressor
- Retirement/ Reduced involvement in household work/ occupation
- Bereavement of spouse/ siblings/ friends
- Isolation and loneliness
- Decline in health
- Vulnerability to abuse

  Role reversal: Elderly have to be dependent in some way to their children

Many elderly people are able to cope up with one or more of these events successfully due to their resilience and support from others. Nonetheless, some may suffer from depressive or other psychiatric disorder with/ without a stressor as a contributing factor.

What should be done for depression?

MOST IMPORTANT IS EARLY IDENTIFICATION AND CONSULTATION WITH A PSYCHIATRIST. Sooner the treatment is started, the faster would be the recovery. Most of the times elderly are able to get completely rid of depression in few weeks to 2–3 months. If they are started on medications as a part of treatment for depression, they may need to continue for few months after the depression has gone. However, they may get better with few counselling sessions and professional psychological support, and may not need any medication. Sometimes, if condition is severe, they may require admission to the hospital especially if they are very old and/ or have many / poorly controlled associated medical illnesses. Regarding medications, few points to remember–

- Mostly, one or 2 medications are required
- Mostly, they have none or minimal adverse effects. If one is not tolerated, there are alternate medications available which may suit well
- These medications don't cause addiction if taken as prescribed by the doctor. Always avoid taking over the counter medication or those given to someone else for sleep or specific psychiatric disorder
- Get the blood tests done as asked by the doctor.
- Always inform physician and psychiatrist of all medications consumed on daily basis or sometimes
- Don't hesitate to inform doctor if there is unwanted effect.

Challenges in Old age depression

- Gets ignored due to following reasons
  - Functional requirement/ expectation from older adults decreases as they age.
  - Some amount of depression/ irritability/ forgetfulness is misunderstood as part of ageing
  - Considered as taboo or that children are not taking care of parents
- Presentation is more related to physical symptoms/ illness
- Person himself/ herself is unwilling to accept it as illness and family feels uncomfortable to pressurize him/ her

- Elderly is dependent on others to be consulted to the doctor
- May be associated with physical/ emotional abuse
- Number of Psychiatrists are low and not easily available

Tips to address the challenges

- To see if there are one or more red flags
- Compare the current elderly's status with that of few months before and note the difference
- The elder person can be convinced with
  - Focusing on managing symptoms to which he is concerned than overall diagnosis
  - Make your intentions clear to him
  - Take one step at a time e.g just consultation to psychiatrist
  - If not psychiatrist, at least any doctor who may help in convincing
- If still the elder person is unwilling, the family member can visit as proxy to psychiatrist and discuss further plan of action including tele–consultation

Can elderly have anxiety disorder without depression?

Yes. Anxiety can sometimes be present without depression. There can be different presentations of anxiety disorders which are distinguished from depressive disorder. Along with feeling of anxiety there may be physical symptoms of palpitations, giddiness, sweating or uneasiness. In these cases, it is always important to rule out any underlying cardiac or other physical illness. Important characteristics may be as follows–

- Come in episodes lasting for few minutes to an hour or continuously throughout the day
- May be associated with reduced sleep or sometimes food intake but unlikely to have other symptoms of depression
- May lead to avoidance of work/ social interaction though would desire of it
- May be present since young adulthood but becomes evident in old age only
- May only have health anxiety

If it is leading to difficulty in sleep or appetite or impaired functioning, it is always advisable to consult doctor. One should avoid taking medications without consultation as it may lead to some kind of dependence.

Is depression and dementia same?

No. Depressive disorder and dementia are 2 different disorders. However, both of them can have similar presentation and association with memory problems, mood changes and behavioral issues. They may also co–exist or may follow each other. It is always advised to take the help of psychiatrist to know the correct diagnosis as these disorders have different course of treatment and prognosis.

How to prevent depression?

Following steps can help in preventing any depressive or other psychiatric disorder, minimizing their impact and leading to faster recovery

- Discuss and plan possible change in life circumstance associated with old age, and act accordingly. Eg Retirement

- Maintain good physical health; focus on control of existing medical illnesses
- Adopt healthy lifestyle: Nutritious food intake, regular physical activity, timely sleep
- Get involved socially in small to big groups; with family, friends and others
- Have reasonable daily schedule of activity
- Inculcate/ develop/ cherish hobbies or interests
- Share/ communicate emotions/ concerns with others
- Try to avoid social isolation
- Discuss/ consult others if depressive symptoms develop with above mentioned features and red flags

  Try to be happy with available facilities & reduce expectations if bothering
- Practice religious/ spiritual activities

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It is an illusion that youth is happy, an illusion of those who have lost it.

–W. Somerset Maugham

12

Cognitive Impairment and Dementia

Dr Mina Chandra

Introduction

There has been increase in life expectancy globally with improvement in nutrition and medical services. Age associated decline in function is observable with every organ of the body, with brain being no exception. Amongst different functions of the brain, cognition is one of the most important.

What is Cognition?

Cognition is the sum total of all intellectual faculties like memory, language, planning, judgement, mathematical ability, abstraction etc. Cognition is essential for independent functioning. To summarise, cognition is what makes human beings, human.

While there may be some decline in cognition with age, cognitive impairment is a cardinal symptom in neuropsychiatric disorders like Mild Cognitive Impairment (MCI) and Dementia.

What is Mild Cognitive Impairment?

Mild Cognitive Impairment (MCI) is a condition in which the impact of cognitive decline on social and occupational functioning is mitigated by use of secondary aids and compensatory strategies like using diaries and lists as reminders, involving family members to ensure minimisation of errors etc. One third to half cases of MCI progress to Dementia.

What is Dementia?

In contrast to MCI, the decline in cognition in Dementia is accompanied by adverse impact on social and occupational functioning which cannot be addressed by compensatory strategies.

How common is MCI and Dementia?

MCI is a common condition and affects 12 to 18 percent of persons older than 60 years. Though Dementia is less common, it still affects 50 million persons globally and more than 4 million Indians.

How to identify MCI and Dementia? Common Symptoms and Subtypes

There are six cardinal domains which may be affected in MCI and Dementia. Patients may show impairment in one or more domains.

1. **Memory:** can be impaired in old age, MCI and Dementia. However, there can be cases of MCI and Dementia where memory is preserved.

Initially, the loss of memory is apparent for recent events and information acquired recently e. g, what a person had for breakfast while information acquired many years back, like events in their childhood and adulthood, is preserved. This pattern often appears confusing to general public as to how the memory for distant events is intact while the memory for current events is lost. It is important to understand that this is a typical pattern in MCI and Dementia and occurs due to deficits in acquiring and storing new information while the information stored earlier, prior to the onset of disease, may be preserved for a longer period. However, as the illness progresses, even memory of older events will get lost.

2. **Attention and Concentration:** Attention is the ability to focus while concentration is the ability to maintain, sustain and shift focus. Persons with cognitive impairment report getting easily distracted with difficulty in doing several unrelated tasks at the same time (multi–tasking) and making simple errors like copying list of numbers (e. g, phone numbers) or information (e. g. address) incorrectly

3. **Executive Functioning:** refers to the ability to plan, organise, make decisions from complex decisions like investment to simple decisions like which clothes to wear in the summer season. For example, when we make a financial investment, we find out the possible options, their financial returns, the tax benefit, the lock in period, time when we want ready cash or liquidity. The ability to do so is through executive function.

Similarly, planning meals for family and guests, requires understanding of number of persons for whom food has to be prepared, portion size for each person so that all dishes are adequate in quantity, any special food requirements e. g. for children or older people. This complex task, though commonly done on a daily basis, is made possible with executive functioning.

A person with dementia may make unwise investments and lose money. Similarly, a house wife who could plan and cook for both small numbers (daily cooking for family) and large numbers (family gathering with guests) may no longer be able to do so after getting dementia. She may not be able to cook complex dishes, or may cook inadequate amounts or large amounts which can go waste.

4. **Language deficits:** include difficulty in naming, reduction in vocabulary, difficulty in communicating effectively and difficulty in understanding what others are telling. There may be difficulty in using syntax and grammar.

   For example, a patient with dementia may not be able to use the word “key” and instead state ”that which opens a lock” instead. While speaking, they may lose their chain of thought during a conversation. Similarly, if a number of sentences are spoken to them, they may not be able to keep up with the topic. Persons who know and speak several languages i.e. those who are multilingual are able to preserve language function longer than those who speak a single language.

5. **Perceptual — Motor:** refers to the ability to understand the objects perceived by our five senses: (eyes, ears, nose, taste and touch) and take action

   For example while driving, we see the position and relative speeds of vehicles in front of us, by our side and behind us, see the indicators for vehicles about to change lanes or make turns, listen to the horns of vehicles trying to pass us or overtake us. Our brain processes visual and auditory information to modulate our speed and choice of lane to ensure safe driving.

6. **Social Cognition:** refers to the ability to express and behave in accordance with social and cultural norms. Persons with Dementia may exhibit impaired social cognition.

   For example, the host, instead of serving guests in a family gathering. might first serve himself/ herself and start eating food contrary to Indian cultural traditions.

The symptoms develop over time and progressively worsen usually. The different levels of severity of dementia are as follows:

1. **Mild Dementia:** Person may become forgetful, get lost in familiar surroundings or may lose track of time. However, they respond to cues and hints.

2. **Moderate Dementia:** Person may experience loss of memory of recent events, may get confused about location and pathway to different rooms within his own home, difficulty in communication, need help in self–care and may show psychological and

behavioral symptoms like depression, anxiety, agitation, wandering away from home etc.

3. **Late Stage/ Severe Dementia:** There is severe cognitive impairment in nearly all the domains with inability to maintain independent functioning. The patient becomes completely dependent on others for basic needs.

In advanced cases of Dementia, person may not be able to recognise close family members and may even forget their own names. They may need assistance in feeding, self–care and hygiene, dressing, feeding and ambulation. Even in such advanced cases, persons may still be able to understand and enjoy music and art and remember brief disjointed pieces of information from their past.

Types of Dementia

Dementia can occur due to several causes. Accordingly, Dementias are classified as reversible (where improvement is possible with treatment) and irreversible which is marked by progressive worsening.

Reversible Dementia may occur due to Hypothyroidism (lower levels of thyroid harmones), Deficiency of Vitamin B12 and Folate, increase in fluid in the brain (called Normal Pressure Hydrocephalous), Infections like Syphilis, HIV and other conditions.

Generally, the term 'Dementia' is used for irreversible types. The common types of Irreversible Dementias are neurodegenerative diseases like Alzheimer's Disease, Parkinson's Disease, Dementia with Lewy Bodies and Fronto–Temporal Dementia. Another common subtype is Vascular Dementia which is due to impaired blood

supply to brain and is commonly seen with long standing Hypertension, Diabetes, Raised Cholesterol Levels (Dyslipidaemia), Paralytic Stroke etc.

How to differentiate from apparently similar but different conditions?

The most common condition with some symptoms similar to dementia is Age associated Memory Decline. This is normal accompaniment of ageing and requires no treatment.

Similarly, Subjective Memory Loss is a condition wherein on examination by trained specialist there is no objective impairment even though the patient thinks that he has reduced memory. This requires no treatment.

In addition, Depression may present as cognitive impairment and this condition is known as Pseudo Dementia. However, in such cases other symptoms of depression like sadness, decreased interest in work, social interaction and pleasurable activities, easy fatiguability, sleep and appetite disturbances will also be present.

What is meant by Activities of Daily Living (ADL)? What is functional Impairment? What happens to ADL in Dementia?

Activities of Daily Living (ADL) are those tasks which are done on a day–to–day basis as essential to care of self and maintaining independence. These include toilet care, bathing, dressing, feeding, walking etc.

Instrumental Activities of Daily Living (IADL) are complex activities required for independent living in

society like shopping, cooking, doing household chores, managing transportation and finances.

Both ADL and IADL are conceptualized in the brain and implemented as per directions from the brain. Both of them require the cognitive modalities of memory, executive function (planning, organizing), concentration to complete the task, language (to communicate), perceptual motor skill (procedure of performing the task in context of surroundings) and social cognition (adhering to when, where and how the task should be performed as per social and cultural norms).

As dementia advances, there is progressive decline in functional capacity of the patient for IADL initially and ADL eventually and the patient may become progressively dependent on others for care and survival.

How does a Doctor evaluate Mild Cognitive Impairment and Dementia?

A person with complaints of forgetfulness or loss of other skills, is evaluated by a specialist Physician, Psychiatrist and/ or Neurologist by taking detailed history with all required information from the patient and the family members, conducting physical examination and their mental status examination. There is specialised test called a Neuropsychological test which is considered to be an objective test, may also be required along with relevant blood tests, CT Scan or MRI of the brain and other specialized tests to identify the cause of dementia.

Treatment

Treatment of Dementia is both by medications and by cognitive exercises. The medications are specialised and are prescribed by a psychiatrist or neurologist. The

medications target cognitive impairment (different aspects of memory and related functions), behavioural and psychological symptoms, sleep and appetite disturbances. Unfortunately, there is no cure for Dementia as yet.

The principle of "Use it or Lose it" reflects the beneficial effect of continuing intellectual engagement and participation. Persons with mild and moderate dementia must continue with their daily activities and skills as long as they can to maintain cognitive reserve and productivity. Hence, such patients must be encouraged to continue knitting, crochet, embroidery, sewing, drawing, painting, cooking, reading, gardening, shopping for daily needs, managing small budgets etc. for as long as they can and even if they make minor errors. This ensures cognitive stimulation, intellectual engagement, productivity and self–efficacy.

It must be ensured that patients with dementia have prescription glasses for visual impairment and hearing aids for hearing impairment so that they can effectively communicate with others. Further, efforts should be made that persons with mild to moderate dementia participate in family gatherings and functions as well as pleasure trips with their family. This ensures adequate socialisation, maintains self–concept and a sense of purpose as well as prevents isolation.

In addition, efforts must be made to ensure appropriate home environment. Assistive devices, hand rails and anti–skid tiles should be placed in wash rooms to facilitate independent use of washing facilities. The chairs and bed should be of appropriate height to allow the patient to sit or lie down and get up independently. The chairs should have arms to facilitate sitting and

getting up without external assistance. To address visuo–spatial deficits (eyesight and determining object in front of them), names of rooms can be written on the doors like kitchen, bathroom, living room, patient's room. If staying in an apartment complex with similar dwelling units, the colour of the main gate of the apartment can be painted differently and in a primary colour, so that the person with dementia can easily identify their own home.

Several cognitive exercises and interventions have been demonstrated to have evidence base including so called Cognitive Stimulation Therapy, Cognitive Retraining, Reminiscence Therapy (discussing about their past experience and engage them in discussion), Light Exercise etc.

The goals of these interventions are multi–fold. The primary aim of these kinds of treatment is to stimulate neural circuits to prevent decline of previously acquired skills due to lack of practice. In addition, group–based therapies provide conducive environment for social participation and friendships. Last but not the least, these interventions aim to preserve sense of self, a compassionate self–concept and a positive self–identity.

In advanced cases, when patients with dementia may not be able to remember their close family members or even their own names, they can still benefit non–medication treatments like art therapy, music and dance therapy, aroma therapy, pain management, sleep hygiene etc. with demonstrable improvement in mood and subjective well–being as well as reduced irritability and agitation.

If the person with dementia is staying in a long stay facility, it is incumbent on staff of that facility to

implement above strategies to ensure well–being and quality of life.

Prevention Strategies

While dementias with genetic basis cannot be prevented, cognition can be preserved by taking balanced diet to avoid nutritional deficiencies like vitamin B12, Folate etc., maintaining regular activity with productivity as long as one can, regular exercise, abstinence from tobacco, alcohol and other drugs, appropriate treatment of hypertension, diabetes and dyslipidaemia, hypothyroidism etc.

Dementia is a serious condition. Early identification and treatment can help in reversing cognitive impairment in case of reversible dementias and slowing the decline and maintaining quality of life for neurodegenerative dementias.

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The great secret that all old people share is that you really haven't changed in seventy or eighty years. Your body changes, but you don't change at all. And that, of course, causes great confusion.

–Doris Lessing

13

Stroke; 'Time is Brain'

Dr Mahendra Javali

Mr M aged 65, came to the hospital with a history of weakness of the left sided upper and lower extremities (hand and legs) with a left facial weakness of one day duration. During my examination, I asked him why you waited for 24 hours to come to the hospital? He thought for a while and said, Doctor, I didn't think it was a serious issue, merely a simple generalized weakness.

Is stroke an emergency? Why should we reach the hospital as soon as possible in case of a stroke? we will learn more about this in this chapter.

Stroke is sudden weakness of limbs and face mainly one side with or without speech difficulty caused by clogging of blood vessels leading to the reduced blood supply to the brain. If one of the arteries (artery supply oxygen and glucose)

remains blocked due to various reasons for more than a few minutes, resulting in reduced arterial blood supply, will damage the part of the brain. Many of strokes are due to ischemia that is reduced blood supply.

Stroke is mainly of 2 types a) Ischemia – that is clogging or closure of blood vessels (85%) b) Hemorrhage – that is leak or rupture of a blood vessel inside the brain or over the brain surface (15%).

Stroke overview:

Stroke is one of the common causes of high morbidity and mortality. It can affect both urban and rural population, if not treated early can lead to permanent disability. In the early stage, where the person is identified as having a likely stroke and treated for same, in subset of patients with opening the blockage and restoration of blood supply can minimize damage to brain and this leads to good clinical recovery. When there is already damage to some part of the brain leading to weakness or paralysis of limbs, rehabilitation measures for long term, initially as inpatient later at home are done to ensure the person can function as much as possible. There are around 2500 neurologists practicing in India, more than 500 are practicing in four major metro cities, with a smaller number of neurologists catering the rural areas.

Who are at the risk of developing stroke?

Those who have long–standing high Blood Pressure, uncontrolled diabetes, high blood cholesterol, chronic smoking, high alcohol consumption, sedentary lifestyle and obesity. Associated cardiac problems like change in heart rhythm like Atrial fibrillation, valve replacement and clot in the left ventricle of the heart.

How do you SPOT a stroke?

BEFAST: any sudden

B – Balance impairment

E – loss of vision in one or both Eyes

F – Face drooping

A – Is there any difficulty in lifting Arms above shoulders

S – Is there any slurring of Speech

T – Time to act and call an ambulance.

What are the symptoms of a stroke?

Aphasia – not able to speak, not able to understand spoken or written language, not able to name simple things like pen or pencil and not able to read or write. Left brain stroke causes aphasia and weakness of right side – right hemiparesis and right visual field defect. Person with field defect will bump against another person, door frame, they cannot judge right half of their vision field if they look straight, hence driving should be discouraged. Right brain stroke causes left hemiparesis and left visual field defect. Brainstem stroke or hemorrhage presents with altered sensorium, sometimes in comatose state, swallowing difficulty, double vision, giddiness, or imbalance while walking.

If you suspect stroke, what should you do?

A person suspected to have stroke should see a Neurologist at the earliest. He should be shifted to a stroke ready hospital, that is hospital having brain imaging (CT or MRI) facility and doctors with experience of stroke thrombolysis and mechanical thrombectomy in selected patients. Stroke should be treated as emergency

and should call for ambulance service to reach the hospital immediately. As a first aid make sure a person is in a comfortable position, preferably lying on one side with head supported, avoid giving them anything to eat or drink and be prepared to answer about patient symptoms and its exact onset.

How do you confirm stroke and what tests are required?

To confirm whether it is ischemia – reduced blood supply due to blockage in a blood vessel or hemorrhage due to rupture of the blood vessel, we need to do a CT brain scan or MRI brain. MRI scan can detect stroke earlier than a CT scan. Angiogram of brain vessels and Carotid–Vertebral Doppler to look for any block or narrowing of large vessels of neck supplying the brain or intra cranial vessels narrowing.

ECG/2D–ECHO to look for heart rhythm, valve diseases or clot in the left ventricle (chamber of the heart). Monitoring sugar levels, lipid profile, kidney functions and blood pressure charting at least twice a day.

What are the Treatment options for ischemic stroke?

1. Reperfusion therapy: a. Thrombolysis (clot lysing/ breaking drug) b. Mechanical Thrombectomy (**If presents within 4.5 hours for thrombolysis, 6 hours for thrombectomy in appropriately selected patients).**
2. Antiplatelets (aspirin, clopidogrel), Statins and anticoagulants. (To prevent another stroke).
3. Control of hypertension

4. Management of diabetes mellitus
5. For large vessel narrowing (carotid stenosis) – Carotid stenting or Carotid endarterectomy (CEA).
6. For large stroke with altered consciousness and brain swelling requires the removal of a skull bone flap (Decompression craniectomy) by Neurosurgeons.
7. Not all patients treated with reperfusion therapy become normal some patients will have residual hemiparesis/ weakness.

What are the treatment options for brain hemorrhage?

a. Intensive care management for patients with altered sensorium
b. Adequate control of blood pressure
c. Anti–oedema drugs to reduce brain swelling
d. Surgical drainage is beneficial in some patients with large superficial hemorrhages

What are the complications of stroke?

a. Large stroke can cause mass effect that is swelling around stroke it can shift normal brain and can cause altered sensorium, it's an emergency and it requires opening of a skull bone flap by a neurosurgeon as a life saving measure.
b. Some strokes can also cause seizures (fits)
c. It can lead to aspiration pneumonia, ie lung infection
d. It can cause pressure sore, deep venous thrombosis in a paralyzed leg
e. urinary tract infection if catheterized.

General care for patients with stroke:

a. Propped up position to avoid aspiration pneumonia
b. Regular change in position to prevent pressure sore
c. Care of bowel and bladder
d. Adequate nutrition if the patient is on tube feeding
e. Speech therapy
f. Physical rehabilitation – from day one is important for early functional recovery
g. Research has shown mainly aerobic exercise can improve physical and cognitive health post stroke
h. Counselling to reduce depressive and other emotional problems

Stroke rehabilitation in elderly

A. Rehabilitation to be started as soon as possible. Neuronal Plasticity that is rewiring of brain improves with repeated, targeted movements assisted by physiotherapist or caregivers.
B. Early mobilization from bed.
C. Encourage patients to learn new habits built around rehabilitation.
D. Emotional support and communication with patients by caregivers is a crucial step in helping stroke survivors recover fast.

What are the steps to prevent stroke?

a. Adequate control of risk factors like hypertension and diabetes by taking medicines regularly
b. Identification and treatment of associated cardiac conditions like irregular heart rhythm

c. Small subset of patients may benefit from surgical options like opening a clogged artery in the neck.

d. Cessation of smoking and cut down on alcohol intake

e. Regular exercise mainly aerobic exercises, thirty minutes a day for five days a week

f. Diet plays an important role in prevention, consume lots of green leafy vegetables, low fat diary products, avoiding refined sugar.

g. Reducing salt intake.

Can stroke reoccur again?

Stroke recurrence is high if medicines are not taken regularly, if a person has underlying cardiac abnormalities like valvular heart disease or abnormal irregular rhythms, clogging of large vessels in the neck. If a person continues to smoke, consumes alcohol and uncontrolled diabetes and high Blood pressure.

Can stroke affect memory?

Yes, it can lead to memory loss called vascular cognitive impairment. It depends on the location and extent of brain damage. Multi–infarct dementia that is multiple areas of brain damage leading to cognitive decline and Strategic infarction or hemorrhage dementia damaging strategic locations like medial temporal lobe, medial frontal lobes, thalamus, and language cortices (important areas in the brain).

What is chronic infarct in MRI brain report?

Chronic infarcts are old strokes, some may have symptoms of stroke in the past, some are silent without

any symptoms. They are usually due to long standing hypertension and diabetes and should be investigated and treated accordingly.

What is a TIA? (Transient Ischemic Attack/Stroke)

TIA is also called as a warning stroke. In TIA, stroke symptoms improve spontaneously within 24 hours, most of the times within 60 minutes. TIA should not be neglected, it should be investigated and treated as a stroke, as there is a high chance of recurrence of stroke.

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Age is opportunity no less
Than youth itself, though in another dress,
And as the evening twilight fades away
The sky is filled with stars, invisible by day.

–Henry Wadsworth Longfellow

Life should begin with age and its privileges and accumulations, and end with youth and its capacity to splendidly enjoy such advantages.

–Mark Twain

The old believe everything, the middle–aged suspect everything, the young know everything.

–Oscar Wilde

14

Parkinson's Disease & Other Related Disorders

Dr Nitish Kamble &
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A) Parkinson's disease:

Case vignette: 60–year–old gentleman, retired government employee, presented with shaking of right hand at rest of 5 years duration, slowness of all the daily activities and change in handwriting of 4 years duration and forward bending while walking for 1 year. There was no history of similar illness in the family. On examination he had stiffness of the right forearm and hand associated with shaking of right hand. He had slowness of movements in the right hand and leg. There was reduced right arm swing while walking with short steps and stooped posture. He was diagnosed as a case of Parkinson's disease and was started on a combination of

levodopa and carbidopa. He had a good response to medications with improvement in shaking of hands, stiffness and slowness of movements.

What is Parkinson's disease?

Parkinson's disease is a slowly progressive degenerative disease of the brain due to insufficient levels of dopamine chemical in the brain. There is progressive death of brain cells in specific region of the brain called as "substantia nigra".

Which age group does it affect?

The disease usually affects individuals after 60 years of age. This is called as sporadic Parkinson's disease. However, it can affect individuals before 45 years of age and is called as "young onset Parkinson's disease".

What causes Parkinson's disease?

In majority of patients (90%) the cause is not known and hence called as idiopathic Parkinson's disease. There is accumulation of an abnormal protein called as "Lewy body" in the brain cells that causes cell death.

Is Parkinson's disease hereditary?

In only 5–10%, the disease is genetic and can be transmitted as either in a recessive (family members may or may not be affected) or dominant manner (family members are affected).

What are the classical symptoms of Parkinson's disease?

Majority of the patients present with one or more of the following symptoms: shaking of the limbs especially

the hands, slowness of daily activities or slowness of movements, stiffness of limbs. In addition, these patients have difficulty in signing with change in handwriting. The letters become smaller in size. Their facial expression is reduced and walking becomes slow with short steps, stooped posture and reduced arm swing. The disease usually starts on one side of the body and later progresses to other side. These symptoms are called as motor symptoms.

What are the other symptoms of Parkinson's disease?

In addition to the above–mentioned motor symptoms, patients with Parkinson's disease also develop other motor symptoms during the latter part of the disease course. These include abnormal dance like movements known as "dyskinesias" and/or abnormal twisting of the limbs (hands or feet) known as "dystonia". Apart from the motor symptoms, a variety on non–motor symptoms are also observed in these patients. Some of these symptoms can precede the onset or develop after the onset of motor symptoms. The symptoms which can precede the onset of motor symptoms includes constipation, reduced/absent sense of smell, mood disturbances, depression, sleep disturbances (bad dreams, screaming/shouting and violent limb movements during sleep). The symptoms which occur in the later part of the disease includes behavioral disturbances, visual hallucinations, memory and other cognitive disturbances, drug induced side effects, urinary problems etc. The patients may also complain of giddiness while trying to get up from sitting position due to drop in blood pressure on standing (orthostatic hypotension). This feature is usually observed in advanced stage of the disease.

How to diagnose Parkinson's disease? Is there any role of MRI or CT scan?

The diagnosis of Parkinson's disease is mainly clinical by a neurologist and is based on the motor symptoms. A good response to dopamine replacement (levodopa) also favors Parkinson's disease. Routine MRI or CT brain is usually normal and does not show any abnormality. However, these investigations are may be required to rule out other disorders that can mimic Parkinson's disease. These tests are done as per the advice of the treating neurologist. Advanced neuroimaging such as "single photon emission tomography, SPECT" and "positron emission tomography is available" that have been used. However, these imaging modalities are used only if the diagnosis is in doubt and in research.

What is the treatment of Parkinson's disease?

Treatment is directed towards replacement of dopamine. The available drugs are levodopa and carbidopa combination and dopamine agonists. In addition, there are other group of medications such as MAO–B inhibitors, COMT inhibitors. A holistic approach is required in the management that includes specialist care from psychiatrist, physiotherapists, speech pathologists and psychologists. Depression, anxiety, hallucinations, delusions are managed by the psychiatrist. The other non–motor symptoms such as constipation, urinary disturbances, sleep disturbances and orthostatic hypotension are treated with specific medications.

How long does the medications work?

Usually, the medications work for 5 years without development of motor fluctuations. Subsequently patients

develop fluctuations in both the motor (dyskinesias) and non–motor symptoms. These dyskinesias are transient and usually develop after taking the medications and sometimes after the effect of medications wanes off. These can be mild or can be severe and disabling. The dyskinesias can be reduced by medication dose adjustment.

What is the surgical therapy of Parkinson's disease?

In advanced Parkinson's disease, deep brain stimulation (DBS) which is a surgical therapy is the standard of care in these patients. DBS helps in improving the motor symptoms and to some extent the non–motor symptoms also. The dose of medications is also reduced substantially.

DBS involves implantation of electrodes in specific parts of the brain. These are connected to a battery which is placed in the anterior chest wall. The treating neurologist decides regarding the suitability of DBS. The indications for DBS include disease duration of at least 5 years, age less than 65 years, good response to levodopa and presence of troublesome dyskinesias. A detailed assessment is required before subjecting the patient for DBS that includes demonstration of medication response, psychiatric consultation, neuropsychological and speech assessment. In addition, MRI brain is done to exclude any contraindications for surgery. Following DBS, frequent programming is required initially to determine the optimal settings of the DBS device to obtain the maximal benefits.

B) Parkinson plus syndromes:

Case vignette: A 70–year–old agriculturist, presented with complains of recurrent falls of 2 years

duration, slowness of daily activities and shaking of left hand of 1 year duration. Due to the falls, he had sustained injuries to head and upper limbs. The falls were predominantly backward. For the past 6 months patient also had change of voice and difficulty to swallow with spilling of food. There was no similar history in the family. On examination his speech was of low volume with drooling of saliva. He had difficulty seeing up. Stiffness was noticed in the neck and left upper limb. There was generalized slowness of movements. When made to walk there was a tendency to fall backwards and his gait was slow with reduced arm swing. A clinical diagnosis of progressive supranuclear palsy (PSP) was made. MRI findings were supportive of PSP. He was started on levodopa+carbidopa combination with which there was mild improvement.

What is Parkinson Plus Syndromes?

These are a group of disorders that are slowly progressive, neuro–degenerative disorders and includes diseases like Progressive Supranuclear Palsy (PSP), Multiple System Atrophy (MSA), Cortico–Basal Ganglionic Degeneration (CBGD) and Lewy Body Dementia (LBD).

Which age group does it affect?

These disorders are usually seen after the age of 60 years of age.

What is the cause?

The exact cause is not known. Like Parkinson's disease, there is progressive death of brain cells (neurons) in specific areas of the brain.

What are the symptoms?

The symptoms are identical to that observed in patients with Parkinson's disease. The patients usually present with shaking of hands or legs, slowness of daily activities, stiffness of limbs, postural instability, frequent falls, urinary problems, erectile dysfunction, orthostatic hypotension, eye movement abnormalities, sleep problems, hallucinations, memory and other cognitive problems, abnormal twisting of the limbs etc. Unlike the Parkinson's disease patients, the symptoms usually start on both the sides of the body, have poor response to levodopa and are observed in the initial stage of the disease. In addition, these patients can have drooling of saliva, speech and swallowing disturbances, psychiatric and behavioural disturbances.

What are the main clinical features of Parkinson plus syndromes?

- **Progressive supranuclear palsy (PSP):** The patients develop early and recurrent falls that are predominantly backward, slowness of daily activities, difficulty in speech and swallowing, shaking of limbs, stiffness of limbs. These patients often develop staring look, tendency to fall backwards while walking or while trying to sit on chair and have difficulty in controlling their emotions (inability to control laughter or cry). The response to medications is poor.
- **Multiple system atrophy (MSA):** These patients develop slowness of daily activities, urinary disturbances, impotence, sleep disturbances (shouting in sleep, bad dreams and violent limb

movements during sleep), orthostatic hypotension with fall in blood pressure on standing, occasionally tremors of limbs and imbalance while walking. These symptoms are observed in the initial stages of the disease. The response to levodopa is poor.

- **Cortico–basal degeneration (CBD):** The main symptoms include slowness of daily activities, abnormal posturing of unilateral limb, asymmetric stiffness of limbs, asymmetric jerks or shaking of limbs and cognitive impairment. In addition, there is progressive speech disturbance. The response to levodopa is poor.

What is the treatment?

Treatment is similar to Parkinson's disease with replacement of dopamine by levodopa tablets. Some patients have a partial response to treatment. As in patients with Parkinson's disease, a multi–disciplinary approach is required for the management. Non–pharmacological therapy is also required in most of the patients in the form of physiotherapy, speech and swallowing therapy, behavioral therapy etc. Psychiatric evaluation and anti–psychotic medications may also be required depending on the cause. Speech pathologists can help with managing the speech and swallowing disturbances. Orthostatic symptoms are usually treated with compressive elastic stockings, postural adjustment maneuvers and medications. Urologist opinion is sought for treating impotence and erectile dysfunction.

How is the response to treatment?

These disorders are poorly responsive to treatment. The disease progresses relentlessly.

Is there any surgical treatment for these disorders?

Surgical therapy is not indicated for these disorders. Deep brain stimulation (DBS) or any other surgeries does not help.

C) Lewy body dementia (LBD):

Case vignette: 64–year–old gentleman presented with history of memory disturbances, visual hallucinations, slowness of walking and other daily activities of 1 year duration. The hallucinations are predominantly seen in the evening and consists of seeing children playing in the house. He also has sleep disturbances in the form of shouting and violent limb movements during sleep and associated with bad dreams. He often has injured his wife while sleeping. For these complaints he was taken to a psychiatrist and was started on medications, following which the symptoms worsened and needed to be hospitalized. He also has episodes of confusion which is predominantly seen in the evening. In addition to memory disturbances, he had difficulty in calculation, dressing and recognizing the rooms in the house. On examination he had slowness of all the movements and was not oriented to time and place. There was stiffness of all the limbs and mild shaking of both the hands in the outstretched position. He walked with short steps with reduced arm swing.

What is lewy body dementia (LBD)?

LBD is the second most common form of neurodegenerative dementia in people older than 65 years. It is characterised by the presence of abnormal material known as "Lewy bodies" within the brain cells. This abnormal material is mainly composed of abnormal

aggregates of degenerated cells (a–synuclein and ubiquitin) that accumulate in various parts of the brain. This causes premature cell death leading to a constellation of clinical features.

Which age group does it affect?

It commonly affects individuals older than 65 years.

What are the symptoms of LBD?

Patients with LBD have cognitive symptoms that involves the visuospatial domains and executive function. Memory is less affected. These patients also have significant psychiatric and behavioural features, such as hallucinations, lack of interest and sleep disturbances. Hallucinations are usually visual in nature. The sleep disturbances are characterized by bad dreams with screaming, shouting and acting out of dreams. These violent limb movements can injure the bedpartner. Patients will also have fluctuating consciousness. Symptoms are worse in the evening. In addition, these patients have features of parkinsonism such as slowness of movements, stiffness of limbs and sometimes tremors. Patients demonstrate intolerance to some psychiatric medications with rapid worsening of symptoms.

How the diagnosis of LBD is made?

The diagnosis of LBD is mainly based on the clinical symptoms. A combination of parkinsonian motor symptoms, cognitive impairment and psychosis developing within a span of 1 year makes the diagnosis of LBD more likely. Diagnostic criteria have been laid down by the experts in the field. Sometimes FDG Positron Emission Tomography (PET) imaging is sometimes required to make a diagnosis.

What is the treatment of LBD?

Currently the treatment is mainly symptomatic using a multi–disciplinary team of Neurologists, Psychiatrists, rehabilitation specialists, physiotherapists and speech therapists. Medications are used to treat parkinsonian symptoms, sleep disturbances, visual hallucinations and cognitive impairment. Response to treatment is variable and should be individualized. Motor symptoms such as parkinsonism and speech disturbances can be improved by physiotherapy, speech exercises and rehabilitation measures.

Is there any surgical treatment for patients with LBD?

There is no surgical therapy available for patients with LBD.

D) Lower Body Parkinsonism:

Case vignette: A 52–year–old gentleman presented to the out–patient clinic with symptoms of progressive walking difficulty of 2 years duration, urinary disturbances of 1 year duration and memory disturbances of 6 months duration. The urinary disturbances were in the form of increased urgency, frequency and occasionally episodes of incontinence. There was no history of tremors. Patient was treated with levodopa by a local neurologist with no improvement. On examination, there was mild reduction in facial expression, stiffness and slowness of movements in both lower limbs. There was no stiffness in upper limbs. Patient was able to walk independently with short steps and wide base. The arm swing was reduced bilaterally and he had difficulty in turning. The patient also had difficulty in initiating walking as if the feet were

glued to the ground. These freezing episodes were more prominent while turning. MRI brain showed dilated ventricles in the brain suggesting increase in the CSF content within the brain. Patient underwent lumbar drainage with removal of 50 ml of CSF using a needle inserted in the lower back. Following which there was a dramatic improvement in walking and urinary problems. Subsequently the patient underwent surgical treatment with CSF diversion (ventriculo–peritoneal shunt) with significant improvement in patients' symptoms.

What is lower body parkinsonism (LBP)?

In lower body parkinsonism (LBP), the symptoms are usually restricted or more affected in the lower limbs. Normal pressure hydrocephalus (NPH) and vascular parkinsonism (VP) are the diseases included under LBP.

Which age group does it affect?

These disorders are usually observed in patients aged 50 years and above.

What are the risk factors for LBP?

The risk factors for developing NPH includes previous head injury and infection of the brain. The risk factors for VP includes old age, high blood pressure, diabetes mellitus, smoking, coronary heart disease (prior heart attack) and prior history of stroke.

What are the symptoms of LBP?

As mentioned earlier, the disease predominantly affects the lower limbs. There is progressive walking difficulty with episodes of freezing as if the feet are glued to the ground with difficulty in initiating a step (magnetic

gait). There is stiffness and slowness of movements in the lower limbs. There is a sense of imbalance while walking with a tendency to fall. In addition, these patients have urinary disturbances in the form of urgency, frequency and incontinence. Memory disturbances are observed in the later part of the disease. Later as the disease progresses, patients may not be able to walk independently and require support to walk. Patients with vascular parkinsonism can have history of preceding stroke prior to the development of disease and worsening of symptoms with every stroke.

How the diagnosis of LBP is made?

The diagnosis is based on the clinical symptoms and supported by MRI brain. In NPH, the MRI brain shows dilated CSF spaces within the brain and in VP, there are features of repeated stroke (large and/or small) in the brain. Sometimes there may be additional MRI features of NPH in patients with VP. In patients with NPH, after the MRI brain these patients are subjected to lumbar drainage procedure. This procedure involves inserting a thick needle in the lower back region with removal of about 30–50 ml of CSF. The patient is observed during the next 24 hours for any improvement in the symptoms. A significant improvement in walking and urinary problems is suggestive of NPH and such patients are candidates for CSF diversion surgeries.

What is the treatment of LBP?

CSF diversion procedures are indicated in patients with NPH. In this surgical treatment, a shunt is placed in the body that diverts the CSF from the brain in to the abdomen. This reduces the CSF within the brain with

consequent improvement of symptoms. Patients with VP are usually treated with levodopa. About half of the patients with VP show partial response to levodopa with improvement in walking. In addition, physiotherapy and regular exercises are indicated in patients with VP. Rarely patients with VP may benefit from CSF diversion procedures.

E) Drug (Medication) induced Parkinsonism:

Case vignette: 32–year–old gentleman presented with history of slowness of daily activities of 6 months duration and mild shaking of both the hands of 1 month duration. The patient has a long–standing history of psychiatric illness (10 years duration) and was on medications for the same. There was no history of psychiatric or neurological illness in the family. On examination the facial expression was reduced and slowness of all the movements. There was mild stiffness and shaking of the hands. He was walking slowly with bilateral reduced arm swing. In addition, there was mild abnormal movements of the lips. MRI brain and other routine blood investigations was normal. A diagnosis of drug induced parkinsonism was made. Psychiatric consultation was obtained and the medications were changed to those with least extrapyramidal side–effects. Subsequently there was improvement in the parkinsonian symptoms.

What is drug induced parkinsonism (DIP)?

Drug induced parkinsonism (DIP) is a constellation of parkinsonian symptoms that are caused my medications used to treat psychiatric illness or other disorders. These drugs interfere with dopamine action in the brain and results in parkinsonism.

Which age group does it affect?

DIP can affect any age group.

Which drugs cause DIP?

The most common drugs causing DIP are the medications used to treat various psychiatric disorders (anti–psychotics). Some of the medications used to treat vomiting (metoclopramide), acidity (levosulpiride) and headache (flunarizine) can also cause parkinsonism.

What are the symptoms of DIP?

The symptoms can start abruptly within few days or in a slowly progressive manner. The symptoms are similar to Parkinson's disease with slowness of daily activities, slowness of movements, shaking of the hands, reduced facial expression, slowness of speech and walking. The symptoms are usually symmetric and both sides of the body are affected simultaneously.

How is the diagnosis established?

The diagnosis is mainly clinical and made by the neurologist after thorough clinical examination. Features of parkinsonism on a background history of psychiatric or other disorders and usage of medications to treat psychiatric illness clinches the diagnosis. However, there are other similar disorders that needs to be excluded before making the diagnosis. MRI brain is usually normal.

What investigations are required for the diagnosis?

MRI brain is required to rule out other disorders that can mimic DIP. Otherwise, the MRI brain is usually normal in patients with DIP.

What is the treatment of DIP?

One the diagnosis is made and the offending drug is identified, the drug has to be tapered and stopped. Sometimes a change in medication is required and the drug is substituted with another that is least likely to cause DIP. The symptoms improve in majority of the patients after stopping the drug. Levodopa and other medications can be tried in patients whose symptoms does not improve.

Conclusions:

Parkinsonism refers to a constellation of symptoms that includes slowness of daily activities or movements, stiffness and shaking of limbs and slowness of walking. Parkinson's disease and drug induced parkinsonism are the commonest types of parkinsonism encountered in daily clinical practice. It is important to differentiate the type of parkinsonism so that appropriate therapy can be started. Multidisciplinary approach that includes a neurologist, neurosurgeon, physical therapist, speech therapist, neuropsychologist and psychiatrist is required for treating the patient's symptoms.

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15

Addictions

Dr Anand Jayaraman

Addictions among older adults seems to have been neglected public health issue in India. This is mainly due to poor health education or knowledge, poor data, limited facilities to cater for these problems. Addictions among elderly population in India seems to be under–estimated, under–diagnosed and so undertreated like in many other countries.

A study conducted by Mundada and colleagues1 among rural population of Aurangabad in Central Maharashtra, the prevalence of addiction among elderly males was 68.3%, the prevalence of various addictions was smoking 30%, alcohol 18.2%, tobacco chewing 29.3% and among elderly females, 45.4% were chewing tobacco. Also, 40.4% males and 50.6% females were found to have

addiction with either of Hukka, Bhang, betel or pan. Study also found significantly higher proportion of males were having addiction of alcohol and smoking.

Alcohol use

Often, we get referrals from General hospitals commonly in post–surgical patients. They are usually a few hours to 2 days post–operative periods when they start behaving rather oddly. They are confused, disoriented agitated, pulling out their tubes, abusive to nursing staff and at times seeing things. There have been instances when patients have to be physically restrained. Routine Blood tests show a slightly elevated liver function tests and total counts. Due to their aggressive and disruptive behaviour, Psychiatrists are called for interventions.

A detailed history often reveals a long history of alcohol consumption which are often missed or concealed. The quantities may vary from a small shot of alcohol to substantial quantities like half a bottle of spirits or wine. Family members and patients tend to normalize such intake and they may vehemently deny their excessive use. The common statements one hears is "I am not an alcoholic". This also highlights the lack of knowledge and absence of regular brief interventions at primary care levels. A simple CAGE (C – you must cut down on alcohol use; A – Annoyed when family asks about your alcohol use; G – feeling Guilty about alcohol use; E – using as Eye–opener or first thing in the morning) questionnaire can be used to screen and if the person gets one or more out of four right, then the person must seek early consultation with a Psychiatrist. Informant history could be vital for the diagnosis.

Firstly, it is important to diagnose to prevent more dangerous complications like Delirium Tremens, Wernicke's encephalopathy or Withdrawal fits. Some of them may lead to more long–term complications like Korsakoff psychosis or alcohol induced dementia. Liver is an important organ that helps get rid of poisonous toxins from our body, and this can get damaged due to excessive alcohol use. Some people may have damage earlier than others. In addition, alcohol use can deplete vitamin especially B1 levels in the body leading to problems with nerve conduction. Also, digestive system may get affected. Kidneys may get damaged.

Older adults who choose to drink should be advised to maintain a diary of their use, slow their pace of consumption and also reduce their quantity. All older adults must be evaluated for memory problems and repeated at regular intervals.

They must be offered medical and non–medical treatment options in the least intrusive and invasive way. Support must be offered even to family caregivers. Most people who use alcohol for long periods of time, require hospitalization to help discontinue their alcohol use and this is called detoxification program and following which phase 2 treatment which is maintenance of the discontinuation of alcohol continues, for which persons must engage with their Psychiatrist.

Thiamine (Vitamin B1) and other vitamin supplements are usually prescribed routinely. Detoxification process means reduce the ongoing effects of alcohol use, will be reduced by admission to General Hospital ward or Psychiatric ward and treated with so called Benzodiazepines carefully while monitoring the response. It is risky to prescribe these kinds of

medications home and so best admitted to discontinue alcohol use. Medications namely Acamprosate and Naltrexone may also be considered with caution for problems with craving.

Recommendations related alcohol use:

- All older adults with history of alcohol use need to be screened for alcohol use disorders when they come into hospitals or at primary care level for other reasons
- Older adults who choose to drink should be advised to slow their pace of consumption and also reduce their quantity
- All older adults will need to be evaluated for cognitive impairment and repeated at regular intervals
- Support must be offered even to carers and support staff. If concerned, family could initiate consultation with a Psychiatrist
- At least, Regular Thiamine supplements are required in those using excessively

Benzodiazepine (sleeping pill) Abuse[2]

When a prescribed medication is used intentional or unintentional but not in accordance with prescribed directions then it is misuse. Misuse can include dose adjustments without prescriber's knowledge, taking larger doses to get the same effect, or taking medication for other indications are some examples. Prescription drug misuse, particularly benzodiazepi-nes is dangerous because of the risk of overdoses and interaction with other medications.

Studies suggest, risk of falls and impending fractures

as well as road traffic accidents increased with prolonged use of benzodiazepines. Ageing causes changes in their body metabolism, changes in the distribution of body fat and water which alters the dosing of medications, therefore needing dose adjustments.

Interactions between drugs may also increase with age due to higher number of medications being used for associated conditions like Diabetes mellitus, Hypertension etc. Furthermore, older adults are particularly vulnerable to social, psychological, physical and financial stressors. Social circumstances can be like isolation or bereavement while psychological reasons could be anxiety, depression, boredom, helplessness, etc. Physical issues can be due to sensory deprivation e.g., poor vision, hard of hearing etc) along with financial constraints due to medical expenses or funding their habits, older adults may be particularly vulnerable to the negative consequences of benzodiazepines.

Benzodiazepines commonly include medications like alprazolam (available as Restyl, Anxit), diazepam (Valium), and lorazepam (Ativan, Lopez) along with others from this group. These drugs are widely prescribed to treat anxiety and sleep problems in India, but meant for short–term only. The medications from this group can be appropriate for a variety of medical conditions like epilepsy, Insomnia, benzodiazepine withdrawal, alcohol withdrawal, severe generalized anxiety disorder, and as part of anaesthesia to mention a few.

Benzodiazepine use for long time has been linked to cognitive impairment. Increased medications sensitivity due to slower metabolism can lead to regular doses after a break can become quite intolerable and sometimes lethal.

Individuals seek Benzodiazepine prescription despite Doctor's advice to discontinue and may start Doctor shopping without family's notice. Sleep difficulties need consultation with Psychiatrists rather than self–medicating with sleeping pills.

Treatment involves having a plan involving the patient for reducing their benzodiazepine use. Engaging patients in a treatment plan that includes supervised withdrawal, addressing craving, relapse prevention with brief interventions; There are also self–help booklets available considered in the outpatient setting and counselling can be offered. Health Education is the key to begin with.

Some Patients with other associated conditions may need hospital admissions for a more controlled withdrawal under supervision. There have been instances when patients have needed ICU facilities for a safe withdrawal. Once detoxed, patients, may still have to go through rehab and relapse prevention programs for successful completion of the programs.

Opiate (pain killers) medication use in older adults:

A study done between 2010 and 2015 in USA showed in adults aged 65 and older, the opioid related visits to emergency department/ Casualty had increased by 74% and also increase in admissions. Studies have shown an increased rate of falls subsequent fractures and confusion due to opioid use in older adults.

Some older adults may require chronic pain treatment (e.g., diabetic neuropathy, arthritis, cancer pain, etc.). But one must know there are potential harmful effects from opioids which include memory impairment, altered liver functions or kidney problems,

multiple medications (resulting in drug–drug interactions), respiratory suppression, osteoporosis to name a few. Cognitive impairment and dementia may go unrecognized.

Painful conditions, such as cancer, may need continuous or intermittent use of opiates as part of pain management, due to poor tolerability or not responding to non–opioid analgesics such as the commonly used non–steroidal anti–inflammatory drugs (e.g., Paracetamol, Diclofenac). For some patients, opioid type of medications may be the best for pain relief. Untreated pain may be associated with poorer outcomes.

As an individual ages, there are significant reduction in liver size and blood flow. This can lead to a higher concentration of drugs even at lower doses. By age of 70, even healthy older adults may experience up to 50% reduction in their kidney function.

These drugs can cause dizziness, nauseous (meaning making you sick and feel like vomiting), constipation and led to falls. At higher doses there can be risk of developing seizures. Individuals are at risk of developing addiction with these prescribed drugs. Patients may start using higher doses or higher frequency of what is prescribed. They may acquire multiple prescriptions from different Doctors which the family members need to watch for.

Tobacco products[3]

It is well known that the use of tobacco is harmful to the body which is also mentioned as a health advisory on the packets; Evidence has shown a significant association between tobacco use and chronic lung disease, heart diseases (dying from a heart attack), diabetes mellitus, osteoporosis, and circulatory problems.

It was found that approximately 51.5 million older

adults in India (44.6%) were using tobacco in the period 2016–2017. Excessive Tobacco users either by chewing or smoking of tobacco products were found to be men from rural areas, they are generally younger in age, and usually those with lower knowledge about the dangers of tobacco use.

Stopping use of Tobacco is critical to reducing the risk for cardiovascular disease, respiratory illness, and many types of cancers. Cessation interventions, include nicotine replacement therapy and substitute prescribing, behavioural counselling, and brief advice.

Recommendations to quit tobacco products [4]

- Seek help soon, consult your doctor.
- You may need to go and have individual counselling.
- You could be referred to a group counselling.
- Use any of the quit smoking services.
- Talk to your close friend for help.

  Start to think of what you can do with the money that is being spent on cigarettes or tobacco so to set up a rewards system for self.
- Go for walks or try another physical activity you enjoy or get involved in any other of your hobbies.
- You may be need medicines to overcome the withdrawal that occurs with discontinuing the smoking or chewing.

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The old believe everything, the middle–aged suspect everything, the young know everything.

–Oscar Wilde

Ageing is always through tough journey, so old age is a success that must be celebrated!

–Vijay Harbishettar

AGEING: Always Gain Experience in Negotiating the Growth

–SP Goswami

16

Delirium; Short Term Confusion

Dr Lorraine S Dias

What is Delirium?

To put it simply, delirium is a sudden/recent state of confusion. It could happen over a few hours or over 1–2 days. In comparison, dementia is a slowly progressive disease where the person has forgetfulness and decreased thinking and judgement abilities. Delirium is reversible once the cause is identified and treated. The progression of dementia can be slowed but it cannot be reversed or cured.

How to recognize delirium?

A delirious person will be unable to focus and complete a given task. The changes in behaviour and routine may not always be obvious; they may be subtle and episodic. Look for the following:

- Change in patterns of movements and speech (for example, a usually quiet person may become very restless, hyperactive and talk excessively; or a talkative person may become unexplainably quiet and withdrawn)
- Repetitive speech, irrelevant replies ("Did you have your lunch?" may be answered with "The news was showing a cyclone today."
- Reduced/loss of memory of recent events like meals eaten, visit to the market.
- Inability to recognize familiar persons/places/ objects/ time and date (disorientation)
- Reduced appetite
- Reduced self–care – not talking bath, brushing teeth, changing clothes.
- Imbalance – swaying while walking and having falls
- Decreased interest in routine activities
- Change in sleep pattern – sleeping more, at unusual hours or waking up before usual time.
- Mood shifts – being excessively irritable, angry, sad

What are the common causes of Delirium?

- Medications:
  - elderly people usually have many medicines for multiple illnesses and sometimes, these medicines taken together may cause confusion,
  - elderly people may accidentally take extra medicines,
  - suddenly stopping some medicines may also cause delirium.

- Alcohol – abrupt discontinuation/excessive intake (binge drinking)
- Changes in level of blood sugars (low sugar level – below 70 mg/dl or high sugar level – above 300 mg/dl)
- Changes in levels of blood electrolytes like sodium, calcium
- Changes in blood oxygen &/or carbon dioxide levels
- Fever/infectious illness
- Dehydration, malnutrition
- Sleep deprivation
- Emotional stress
- Severe pain
- Around the time of medical/surgical hospitalization and procedures
- ICU stay or admission in a single–bedroom, with no/minimal interaction with attendants

How is Delirium managed?

It becomes crucial to identify delirium and its cause. A person's clinical condition can deteriorate rapidly and may warrant ICU admission. Hence, a prompt visit to a medical professional/facility is needed. The doctor will take a focused history, do a physical examination and blood investigations and scans (if needed) to detect the cause of delirium. A Physician would usually be in–charge of evaluation and treatment. He/she would consult with other specialists, like the Neurologist and Psychiatrist as and when needed. Once the cause is identified and treated, the patient usually makes a complete recovery. Repeated attacks of delirium need detailed evaluation once the person recovers from the

episode. Repeated episodes can affect a person's memory, motor skills, thinking and analyzing abilities and may lead to persistent impairment.

The involvement of family and friends in management becomes crucial.

- They can help in reorientation of the patient.
- They can reinforce usage of a patient's eye–glasses and hearing aids.
- They can talk about familiar topics and reinstitute a familiar routine of daily activities.
- They can help restore a normal sleep pattern by encouraging the patient to be awake and active throughout most of the day and provide a calm, noise–free surrounding for restful sleep.

Delirium in the Hospitalized Patient

Delirium is commonly seen in the hospitalized elderly patient, especially in the post–operative period. Factors like pain, medications and underlying illness can trigger it.

Steps to avoid /reduce delirium in hospitalized patients are: minimizing sleep deprivation, minimizing visual and hearing impairment, ensuring familiar people visit frequently, encouraging physical activity and minimizing use of sedatives and appropriate pain management.

Fever and Infections

Fever is temperature above 37.6* C or 99.6* F in adults (recorded under the arm) (* = degrees).

Fever usually is an indication of infection. However, it could also be a symptom of inflammatory disorders

(like joint diseases) or cancers. Hence, persistent fever or recurring fevers, not responding to paracetamol and antibiotics/antivirals given as a routine course of treatment, must not be neglected.

Elderly people are prone for infections with strong microbes, infections by multiple organisms, infections which rapidly lead to involvement of multiple organs and infections which do not always present with fever or typical localizing symptoms. Infections may manifest as a change in mood/ appetite, hypothermia (body temperature below 35* C/95*F) or delirium.

Common infections in the elderly are as follows:

1. Urinary Tract Infections (UTIs):

A person may have increased frequency of urination, complain of burning/difficulty while passing urine, change in urine colour, blood in urine, lower abdominal/back pain, nausea, vomiting and fever.

The doctor will ask for a urine test to check for pus cells and a urine culture and sensitivity to identify the microbe growing and antibiotics which will kill it. Complete blood counts, a kidney function test and sugars levels will be tested. Men with UTI will be evaluated for prostatic enlargement.

The doctor will advise increased fluid intake, appropriate antibiotics and paracetamol.

2. Pneumonia:

Lung infection/pneumonia presents commonly as cough with or without sputum, one sided chest pain which increases on taking a breath, shortness of breath and noisy breathing. Pneumonia can cause a rapid drop in blood oxygen levels which leads to a state of confusion

or drowsiness. Elderly people are prone for pneumonic infections by unusual micro–organisms.

The doctor will ask for complete blood counts, sugars, kidney function tests and blood electrolyte levels. Sputum will be collected for gram stain, culture and sensitivity. A chest x–ray will be taken.

The doctor will treat the pneumonia with antibiotics, cough medications, paracetamol and if indicated, bronchodilator nebulization/inhalers. A patient will be admitted in case of low blood oxygen levels or deranged kidney function/blood electrolyte levels or delirium.

3. Gastroenteritis:

All 'stomach–upsets' are not due to infections and not all infectious gastroenteritis are due to bacteria. Bacterial gastroenteritis is usually associated with foul–smelling stools, mucus, sometimes blood in stools and crampy abdominal pain.

The doctor will emphasize rehydration, rehydration, rehydration and prescribe supportive medications for gastritis and probiotics. Antibiotics will be advised if bacterial gastroenteritis is diagnosed. Medications like loperamide/lomotil/imodium are usually avoided if a bacterial infection is suspected, until appropriate antibiotics are started. The doctor will order tests for blood counts, kidney function test, electrolytes, sugars and stool routine. Always consult a qualified Doctor.

4. Skin and related infections:

The elderly usually have dry and fragile skin which cracks easily. It is prone for skin infections/infections just below its surface called subcutaneous infections. A common infection seen is cellulitis which occurs in the leg. Abscesses are pus filled swellings. The doctor will

prescribe antibiotics and anti–inflammatory medicines and skin moisturizers.

5. Dental infections:

Tooth infections are common due to poor dental care, caries teeth, poor gum hygiene etc. The treatment of dental infections can be long drawn and can affect the patient's food intake. The doctor will advise frequent monitoring of blood sugars, salts and blood pressure. Certain medications like blood thinners may be temporarily stopped during dental procedure.

An important point which cannot be emphasized enough is to avoid self–medication for fevers/infections. There could be drug interactions, use of inappropriate antibiotics in incorrect dosages and abuse of pain–killer medications. Self–medication may also mask important signs which would aid the treating doctor in making a diagnosis.

Self– medication can hence be detrimental to the person's health and may lead to (avoidable) hospitalizations in many cases.

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17

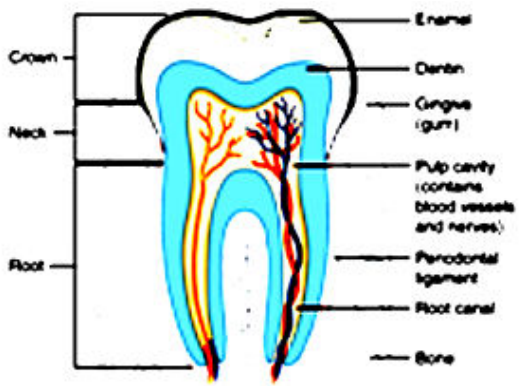
Oral Health and Hygiene

Dr Shruthi S Fasalkar

Introduction

Ageing can be defined as a progressive and generalized impairment decline of function. It can be general or related to oral health. We shall discuss some of the oral changes seen with ageing, symptoms experienced due to these changes when to consult your Dentist.

The oral cavity (mouth) is made up of three main organs teeth, tongue and oral mucosa.



Teeth

Image Courtesy (used here for health education purpose only);https://commons.m.wikimedia.org/wiki/File:2409_Tooth.jpg

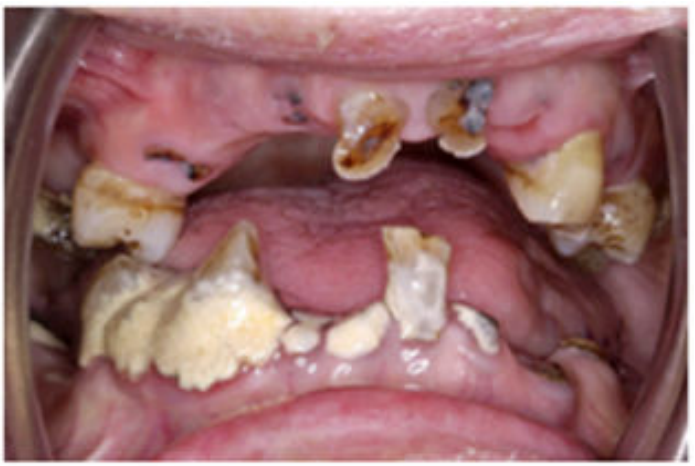
Common changes in (Teeth) with ageing

As age progresses everyday wear and tear damages the tooth layers. The outermost layer of the tooth that is Enamel chips out due to which individual can observe a change in the shape of the teeth, that is the biting surface of the teeth becomes flat and the color of the teeth becomes yellow and the patient experience sensitivity(shocking feeling in the tooth) while having cold and sour food items. If the damage to the teeth is more, then the patient may experience pain. When patient observes any of the above changes and experiences any of these symptoms they should report to the Dentist

Treatment for this depends on the degree of damage to the teeth if the damage is minimal then a normal filling is done to the damaged tooth. If the damage of tooth structure is more, then the patient is advised Root canal treatment. It is done under local anesthesia where the Dentist cleans the third layer of the tooth that is called pulp and fill the pulp canal with a filling material and fix a cap over the treated tooth. As elderly patients can't keep their mouth open for longer time, Dentist may do it two or three appointments to complete the treatment to avoid discomfort to patients. The patient is advised to wear a night guard(flexible plastic material) that covers all the teeth, to prevent further damage to the teeth particularly for those having habit of grinding their teeth at night.

A white chalky material called (calculus) gets deposited continuously around the teeth or in between teeth and gums it is formed with the continuous deposition of a thin layer of food particles along with some content from saliva. It contains germs which slowly damages the gums around the tooth and makes the gums

red, swollen and could bleed while brushing teeth. As the gums become infected it slowly detaches from teeth and moves down which further damages the jaw bone that supports the tooth due to which the tooth becomes loose and may fall. When patient observes this chalky white deposit with red swollen gums and bleeding while brushing, they should visit the Dentist and get the teeth cleaned which is not a painful procedure.Depending on the deposits on the teeth the number of appointments is fixed. After the cleaning procedure Dentist advises the proper brushing technique, flossing, type of brush to be used, and may prescribe the mouth wash. Every individual should get their teeth cleaned approximately once in 3months to make teeth strong. It is a myth that some people have, that teeth will become loose if you get frequent teeth cleaning procedure.



Calculus deposit around the teeth

Image courtesy (used here for health education purpose only); https://upload.wikimedia.org/wikipedia/commons/2/22/Caries%2C_Periodontal_disease%2C_calculus.png

Root caries

Root Caries (decay on root surface) root surface is that part of the tooth that is inside the jaw bone. Root Caries is more common in older people as gums move down it gets detached from the tooth and exposes the root surface. Food particles get deposited to the root surface and due to improper cleaning germs multiply and lead to root caries. When the patient observes brownish–black discoloration with a rough irregular surface on the tooth and experiences sensitivity or pain. Patients should report to the Dentist if they observe these changes

Treatment depends on the extent of the tooth decay; if it's minimal then filling is done and if it is deep then Root canal treatment is advised.

Changes observed in tongue with ageing

A healthy normal tongue appears to be thin, pink, with a very thin white coating on it, and is usually wet. As the age progresses the tongue becomes dry, with a thick white coating on the tongue, taste alteration, and difficulty in swallowing. Sometimes tongue appears to be bald with reduced taste buds on the tongue due to deficiency of Vitamin B12, poor diet due to inability to chew the food due to loss of teeth. These changes can be related to ageing which is normal or related to the medicines which they take regularly example medicines for BP, psychiatric issues, and many others. If a person is diabetic these changes are observed as there is reduced saliva flow. The patient should see theirDentist if any of the above changes observed. Even though these changes are natural with age, the Dentist may advise you to drink at least 3litres of water per day considering your general health, and to chew sugarless chewing gums. If it is too

dry then they may advise medication to increase the flow of saliva.

Alteration in taste is usually associated with regular use of BP medication, so consult your physician regarding the change of medicine. The Dentist may advise multi–vitamin tablets if there is any deficiency due to a poor diet. If white quoting on the tongue is thick then the Dentist advises and trains you on how to use a brush or the tongue scraper to clean the tongue.

Changes observed in Oral mucosa (lining of the mouth) with ageing

Due to ageing oral mucosa becomes thin, fragile, losses its elasticity (difficulty in opening the mouth), dry, and the patient experience a burning sensation in the mouth. These changes may be due to ageing, systemic disease like diabetes, intake of BP medication, improper nutritive diet, bad habits like smoking, chewing tobacco, alcohol. Also, in females when they are nearing menopause or post–menopause, due to reduced estrogen hormone which reduces saliva flow in the mouth that leads to dry mouth, thinning of lining of mouth (mucosa) and is associated with a burning sensation. When the patient observes any of these changes report to your Dentist. Dentists advise to sip water regularly, try sugarless drink, or suck ice chips, stop consumption of tobacco, alcohol, stop consumption of spicy food, If dryness is more then they advise medication to increase saliva flow. If dryness is related to menopause or post–menopause then the patient is advised Hormonal Replacement Therapy under the instruction of a gynecologist. If the burning sensation is more, then they advise an anesthetic mouth rinse to reduce the burning sensation.

Miscellaneous

- Due to the destruction of tooth structure, the tooth may become sharp and injure and damage oral mucosa causing(traumatic ulcers) or it may be caused due to ill–fitting dentures. When patient observes ulcer, experience pain, unable to eat hot spicy food then report to the Dentist.
- Oral cancer is unfortunately second most common cancer in India, and may be due to habits such as smoking, chewing tobacco, and consumption of alcohol. Older people are more prone to oral cancer due to less immunity. When the patient feel or see any lump, ulcer, red or white patch, difficulty in opening mouth, report to the Dentist early. Initially, it is painless but later it's very painful, patient cannot eat, speak so better to avoid such habits.
- Loss of teeth is more common in old age. In females when they attain menopause or post–menopause due to lower levels of estrogen hormone and calcium there is bone loss due to which they may lose their teeth. In males, habits such as smoking, alcohol leads to bone loss, and in turn, they may lose their teeth. In general uncontrolled diabetes, poor oral hygiene leads to bone loss and loss their teeth.

Suggestions

- Visit your Dentist once in 3months
- Brush twice daily, use the brush as advised by yourDentist
- Floss daily so that it prevents root caries
- Use fluoridated toothpaste to prevent tooth decay

- Get your teeth cleaned every three months to prevent gum bleeding, loss of teeth and root caries
- Use a tongue scraper to clean your tongue which is suggested by the Dentist considering your age
- Rinse your mouth regularly
- In case of ulcers if it does not heal within 15 days then visit the Dentist
- Replace your missing teeth with a Prosthodontic appliance(artificial teeth)
- Clean your prosthodontic appliance daily with soap which is used to take bath. Place the appliance in water at night before going to bed
- If the teeth are sharp and irritate buccal mucosa (lining of the mouth)isit your dentist and get the sharp tooth smoothened or get it removed as this irritation from the sharp tooth may lead to oral cancer.
- Avoid smoking, usage of tobacco, and alcohol as these may make jawbones weak and lead to tooth loss or may cause oral cancer
- Menopausal women and post–menopausal women are advised to visit the dentist and get the radiograph done as it suggests the bone density (bone thickness).
- Menopausal and post–menopausal women are advised to take Calcium supplements.
- If you are diabetic keep it under control, take medications regularly as diabetes may cause dry mouth, bone loss, and fungal infection (candidiasis)
- Inform the Dentist if you have BP, diabetes, heart problem, or under any of the medication as this

information helps the dentist to modify the treatment plan.

- If you are unfortunately diagnosed with Cancer and have advised radiation therapy, visit your Dentist before radiation therapy and get the emergency oral treatment before 2 to 3 weeks.
- Caregivers of the elderly persons need training in Oral Health and Hygiene

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So different are the colours of life, as we look forward to the future, or backward to the past; and so different the opinions and sentiments which this contrariety of appearance naturally produces, that the conversation of the old and young ends generally with contempt or pity on either side.

–Samuel Johnson

Old age is not a disease—it is strength and survivorship, triumph over all kinds of vicissitudes and disappointments, trials and illnesses.

–Maggie Kuhn

The great secret that all old people share is that you really haven't changed in seventy or eighty years. Your body changes, but you don't change at all. And that, of course, causes great confusion.

–Doris Lessing

18

Kidney Diseases

Dr Rajiva Ibakkanavar

"Age is an issue of mind over matter. If you don't mind, it doesn't matter."

—Mark Twain

In the last few decades because of improved lifestyle and healthcare facilities our lifespan is improving, and we are living longer. Because of this and negative population growth–rate the elderly population (> 65 years) is increasing steadily. The elderly population was 382 million in 1980 and increased to 962 million in 2017. By 2050 elderly are likely to represent nearly 2.1 billon of total population worldwide surpassing the total children and adolescent population. In North America and Europe currently 20% of population is elderly and increase in numbers is expected to be much more significant in

developed countries and by 2050, in these countries elderly population is projected to account for >35% of the total population.

India is relatively a younger country with nearly 60% of population is <35–year–old as per population census of 2020 and elderly represents 12% of total population. It is projected that by 2050, Indian population will be expected to reach 1.65 billion and 20% of Indian population will be elderly. With improvement of healthcare facilities, the life expectancy at birth in India is steadily increasing and currently it is 70.4 years.

Epidemiology of Kidney diseases:

Most of the developed countries maintain a registry of kidney diseases and will be able to project the numbers and prognosis based on registry data. India poses a different challenge with regards to kidney health as there is no dedicated registry database. Just to give an example of how the problem is growing, as per one of the available reports the death rate secondary to kidney diseases in India doubled from 0.59 million in 1990 to 1.18 million in 2016.

Our Kidneys:

Kidneys perform some of most vital functions in the body which includes removing toxic waste products generated from food and metabolic functions, control of fluid status and Blood pressure.

Kidneys work in harmony with other organs like heart, brain and liver. On average 20% of blood passes through kidney every minute and approximately 180 litres of blood is filtered each day (Glomerular Filtration Rate (GFR): approximately 120ml per min per 1.73m2

body surface area). Kidneys maintain a fine balance of fluid status and eventually our kidneys reabsorb nearly 99% of filtered water and electrolytes and we excrete 1–2 litre of urine per day (approximately 1ml/kg/hour) to remove most of the unwanted waste products.

Kidney function can be assessed by blood tests and ultrasound examination and kidney disease is staged based on the GFR a mathematical formula based on the blood test for age specified criteria.

Age related decline of Kidney function

As we get older our kidneys get old too and are partly influenced by the health of other organs, especially of the heart. Kidney function slowly reduces after the age of 40 years even in otherwise healthy adult and rate of decline is approximately 1% per year. So by the age of 65 already 25% of kidney function is lost and still person remains asymptomatic.

Chronic Kidney disease:

Chronic Kidney disease is a longstanding Kidney condition where kidney function deteriorates progressively and continuously with no signs of recovery.

Risk of kidney diseases increase significantly in elderly population. **On average approximately 50% of people >75 years old have chronic kidney diseases.** Long standing health conditions like Diabetes and Hypertension affect kidney adversely and the kidneys function deteriorates. Other causes of chronic kidney disease include obstructive nephropathy (obstruction of urine passage), some medications use (commonly over the counter prescription of painkillers) and Urinary tract Infections to name a few.

The Kidney has a great reserve and majority of patients do not manifest any symptoms of kidney disease till very late stage of kidney damage and only evidence of kidney damage will be in form of blood test abnormalities and changes in kidney appearance in ultrasound examination.

Symptoms at later stages of kidney disease includes

1. Oedema (swelling of face and legs especially in early mornings),
2. Breathing difficulty (initially at exertion and progressed to breathless at lesser activity and at rest)
3. Weight gain
4. Extreme tiredness
5. Pallor (secondary to anaemia)
6. Poor appetite and weight loss
7. Nausea and vomiting
8. Itching and black pigmentation of skin.

Kidney failure can increase risk of uncontrolled blood pressure, Anaemia (lack of red blood) and bony abnormalities and these complications will need to be treated appropriately under the care of a specialist Nephrologist. When kidneys completely fail the accumulation of waste materials in the body can lead to heart failure, confusion or coma and in extreme cases can lead to patients death.

When kidneys fail completely doctors do recommend artificial means of removal of waste and water and this process is called as **Kidney Replacement Therapy.**

1. **Dialysis:** This can be performed either by blood purification (Haemodialysis) and Abdominal fluid purification (Peritoneal Dialysis)
2. **Kidney Transplantation:** (Process of healthy Kidney implantation from relative or cadaver donor): In select number of patients who are otherwise healthy and fit in absence of any other significant medical illness. The donated kidney performs all the functions of Kidney and patient can remain free of dialysis. Patient needs to take regular medications to prevent loss or damage to donated kidney. (cadaver means dead)

Diabetes Mellitus and Kidney disease

Diabetes Mellitus (DM) needs a special mention here. Diabetes mellitus is the commonest cause of kidney disease worldwide. This condition is usually progressive and leads to permanent kidney damage. Diabetes is associated with faster decline in kidney function compared to other conditions. Diabetes induced kidney disease accounts for nearly 40% of patients on dialysis worldwide.

Diabetes also is associated with high blood pressure, risk of obesity, high cholesterol and leads to complications like heart disease, stroke and paralysis and infections to name a few.

The incidence of Diabetes is increasing in alarming numbers worldwide. Globally by 2019 Diabetes was prevalent in 9.3% of population and the numbers are expected to increase to 10.2% in 2030 and 10.9% in 2045. Diabetes is more prevalent in elderly and currently 19.5% of people of age group 65–79 years are diagnosed to have diabetes.

As per health statistics of 2019 India accounts for

more than 77 million patients with diabetes and it is projected that by 2045 numbers are likely to double up to nearly 134 million. Nearly half of patients with Diabetes are not aware of their diabetes. Diabetes Mellitus (DM) is the most common cause of chronic kidney disease worldwide and India is no exception.

Urinary Tract Infections

Urinary Tract infections are fairly common as we age and its slightly more common in females compared to males. Usually, patient will present with symptoms of burning urination, blood in urine and frequent urination. Some patients with severe urinary tract infections also present with fever and chills, pain over kidney site and in very severe cases with hypotension (low BP), confusion or coma. This condition is diagnosed by urine analysis and will need to be treated with appropriate antibiotics. Sometimes patient needs to be admitted to hospital for injectable antibiotics.

Kidney stones:

Kidney stones are also fairly common occurrence in elderly population and usually associated with dehydration and some types of diets like increased milk product or meat–based diet.

Patients present with history of pain over kidney site which is sometimes unbearable, blood in urine and difficulty to pass urine. Patient are usually very symptomatic and invariably need admission for control of pain and treatment.

Treatment will be in form of intravenous hydration and pain medications and many times the patient will be able to pass stones via urine. Rarely a patient may need a surgical treatment to remove the impacted stone. This

condition can recur in later stage and the preventive measures include increased fluid intake to prevent dehydration and frequent micturition. Recurrent episodes of kidney stones is a risk factor for urinary tract infections or eventual Kidney failure.

Prostate abnormalities

Prostate is an organ in Males, is situated at the outlet of urinary bladder and its main function is to store the sperms in young adults. Due to hormone changes in late adulthood prostate increases in size and may obstruct urine flow. This condition is called as Benign Prostatic Hypertrophy. Patients present with difficulty to pass urine and frequent urination, will require clinical examination, blood test, ultrasound examination and biopsy of prostate to confirm the diagnosis. This condition needs to be treated with medications and sometimes operation to remove the prostate.

To risk of Prostate cancer increases with age the patients present with complaints similar to patients with Benign Prostatic Hypertrophy. Diagnostic investigations include clinical examination, blood tests, radiology and biopsy of prostate. This condition is more serious and will need to be addressed as a matter of urgency. Treatment of prostate cancer includes operation and anti–cancer medications.

Preventive measures:

Kidney disease is usually progressive, and requires preventive measures and control of the longstanding conditions to control progression of kidney disease.

1. Control of Diabetes and Hypertension. Aim for Blood sugar to as near to normal as possible (100–140) and Blood pressure below 130/75mm Hg.

2. Drink plenty of water, up to 2 litres (8 glasses) per day to avoid dehydration and reduce risk of Urinary tract infection or kidney stones.
3. Regular moderate exercises.
4. Healthy balanced diet.
5. Avoid smoking, alcohol in moderation and avoid use of over–the–counter use of medications.
6. Regular health check–up, Urine and blood tests at–least annually and medical examination.
7. Check any medicine you are taking that causes kidney diseases.

Some of the warning symptoms which warrant early referral to physician or Kidney specialist.

1. Blood in urine.
2. Frothy urine.
3. Symptoms of pain while passing urine, pain over kidney site or over the lower part of abdomen.
4. Frequent urination and frequent night urination.
5. Difficulty to pass urine and sensation of incomplete urination.
6. Reduced amount of urine.
7. Fever and any of the above symptoms.

And to remember healthy lifestyle and regular health checkup can ensure disease free and comfortable life.

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19

Skin Ageing; Grace versus Deferment

Dr B S Chandrashekar &
Dr Seema Manjunath*

Introduction

India's ageing population is rising with increased longevity meant more number of older people around. Hence the people are cognizant of changes in their appearance and love to look younger because of societal pressure. Ageing is a multifactorial degenera-tive process with environmental influences which involves skin and its supportive structures like bone cartilage and subcuta-neous compartments. Some changes like wrinkles, brown pigments and sagging are not acceptable to many people. However, there has been great demand for effective skin and facial rejuvenation treatments to make them look younger.

Causes of Ageing:

It is the most exposed part of our body hence it is more vulnerable and noticeable. As face is the focal point of human beauty, the signs of ageing are first noticed on face. The overall thickness of skin decreases at about 6% per decade, decreasing faster in women than in men. This phenomenon occurs in all layers of the skin. It is most pronounced in exposed areas, such as the face, neck, upper part of the chest and the extensor/outer surface of the hands and forearms. In addition to the skin, underlying soft tissue and bone undergo changes leading to change in facial and body contour.

Our skin ages due to various internal and external causes. Internal causes of skin ageing are due to individual genetic make–up and cannot be changed. However, various external factors like sun exposure, pollution, xenobiotics (chemicals), smoking and unhealthy diet, can cause premature ageing of the skin. A comprehensive approach to lifestyle and skin care can lessen the conspicuous signs of skin ageing or prevent premature skin ageing.

Internal causes of skin ageing:

Our biological age regulates changes in the structure and functions of skin. There is gradual reduction in these as we age.

- **Cellular function:** At young age, well developed interlinking between each layer of skin promotes efficient supply of moisture and nutrients. As the we age, the efficiency of the intercellular links decreases.
- **Hormonal influences:** Estrogen protects skin from

several contributory factors of ageing like Reactive Oxygen Species (ROS), cellular ageing and DNA damage.

- **Deficient blood supply** to the skin leads to reduced delivery of nutrients and oxygen. This leads to loss of glow that is seen in young skin.
- **Genetics:** The phototype of individual's skin determines the age at which our skin starts to age and how fastly it progresses.

  For example: There are six skin phototypes – Indian skin falls under Phototype IV–V. This type has more melanin content and protects from accelerated ageing and skin cancers. However, we are more prone to pigmentary changes.

External causes of skin ageing

The external factors contribute to skin ageing by causing oxidative stress. Oxidative stress is a process which produces molecules called Reactive oxygen species (ROS) and free radicals. These can cause premature ageing by impairing cell structure and function. In young healthy skin, ROS and free radicals are neutralized by antioxidants in the skin. However, over time, the skin's ability to de–activate ROS decreases resulting in damage to skin cells.

Various lifestyle factors trigger Oxidative stress, there are as follows:

Sun exposure:

The Ultra violet A (UVA) from the sunlight causes imbalance between ROS and antioxidants in skin leading to damage to structure and function of skin. This damage

due to sunlight is known as photoageing and uneven skin tone and pigmentation is one of the earlier signs noticed.

Pollution

Air pollution due to traffic in cities contains nitrogen dioxide, soot and various particulate matter. When our skin comes in contact with these pollutants, various reactions occur leading to release of free radicals and contribute to premature skin ageing. Simultaneous exposure to air pollutants and UV rays can accelerate oxidative stress.

Smoking

Nicotine and other chemicals present in cigarettes trigger molecular reactions and release free radicals in the skin causing premature ageing. It decreases hydration of skin, reduces blood flow to skin thus depletes oxygen and nutrient supply to skin. Due to decreased blood supply they also cause damage to underlying soft tissue leading to hollowing of cheeks.

Nutrition

High calorie diet causes oxidative stress and lead to premature skin ageing. It also interferes with repair of the skin and interferes with remodelling. Eating lots of antioxidant–rich fruits and vegetables can reduce the oxidative stress and promote skin remodelling.

Improper skin care

Inadequate skin care and use of strong irritant products to your skin can promote skin ageing. Adequate cleansing of skin with gentle products appropriate for your skin type and seasons, and regular application of moisturisers and sunscreens can help to prevent premature skin ageing.

Structural changes in ageing skin:

Skin ageing affects all layers of the skin.

1. Epidermal layers

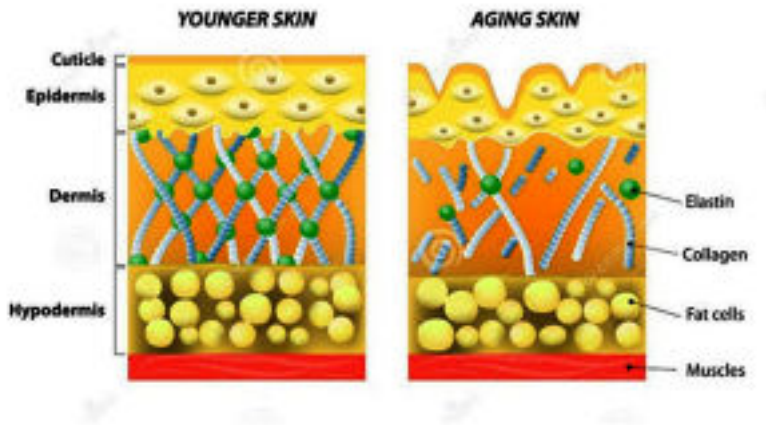
The rate of cell turnover as well as thickness of epidermis decreases as we age. A gradual decrease in melanocyte number and function occurs leasing to uneven pigmentation of skin. Decrease in sebum production can cause dryness of skin surface. Due to decrease in blood vessels, there is a lack of nourishment and skin appears dull and lustreless. A decrease in immune cells called langerhan cells has also been noted which contributes to higher risk of infections and delayed wound healing.

2. Dermal layers

As skin ages, new collagen production decreases and are disorderly arranged, leading to disorganisation of dermal matrix. In addition, the function and structure of elastin is hampered, water retaining components like hyaluronic acid and dermatan sulphate are decreased. These changes cause loss of tensile strength of skin leading to formation of fine lines, wrinkles, dryness, loss of youthful tone and texture. It also becomes weaker and get damaged and broken capillaries (small blood vessels).

3. Subdermal layers

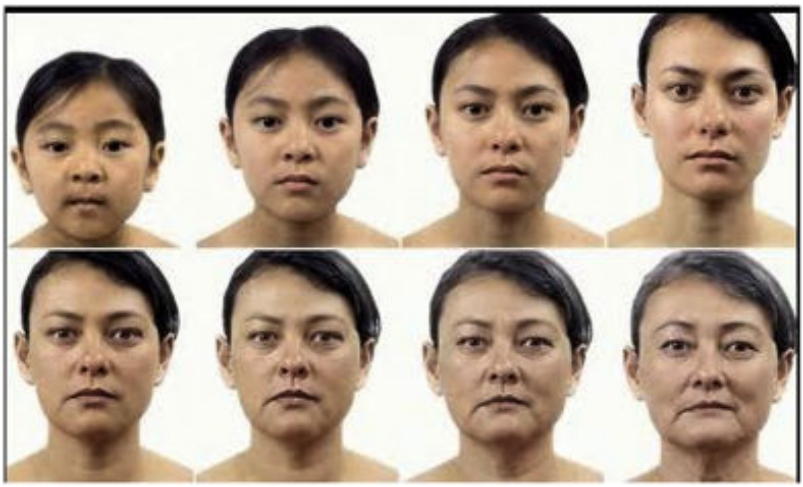
The fat component below the skin layers undergo resorption with age leading to sagging skin and volume loss. These are visibly observed as deep wrinkles, sagging of cheeks and hollow temples.



(Image Reference–https://www.dreamstime.com/stock–illustration–younger–skin–older–skin–aging–elastin–collagen–diagram–aging–showing–decrease–collagen–image47370344)

Signs and symptoms:

The initial signs of skin ageing start to become apparent at around the age of 25. Fine lines appear first followed by wrinkles, loss of volume and loss of elasticity become noticeable over time. As we age, the skin thins, dries, wrinkles, and becomes unevenly pigmented. A loss of underlying fat, bone and cartilage, manifests as sagging skin and fallen nasal tips. The first signs of ageing are fine lines around eyes, mouth and forehead, greater visibility of bony landmarks, hollowing of the cheeks and perioral area and deepening nasolabial folds. This is followed by flat eyebrows, upper eyelid laxity, atrophy of lips, decent of the corners of the mouth and lower face and neck sagging. Surface changes like roughness, enlarged pores and pigmentary blemishes are also part of ageing process.



(Reference – https://youtu.be/uBiAq6uO7J8)

The most commonly observed signs of skin ageing are described below:

1.Wrinkles

Fine lines and wrinkles are the first visibly noticeable signs related to skin ageing. These occur because of repetitive facial expressions. These are usually noticed over forehead, glabella, at outer corners of the eyes and root of nose. Initially these are noticed only during facial movements, as ageing progresses it becomes apparent even at rest.

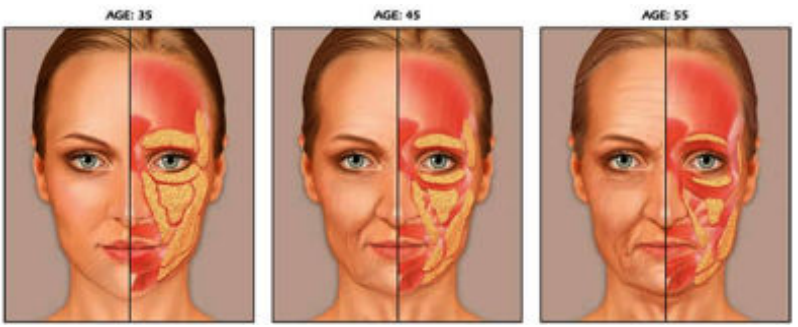
2. Loss of volume

The decrease in facial volume becomes apparent as sagging of eyelid skin, sagging of cheeks, prominence of laughter lines around mouth and prominence of folds in neck. These changes make the face to appear sad, tired and old. Long term smokers tend to have hollowing of

cheeks due to loss of volume in cheek fat pad because of repetitive sucking movements.

3. Loss of elasticity

As previously explained, due to loss of collagen, elastin and matrix proteins of dermis, the skin loses its elasticity and tensile strength. This leads to wrinkled inelastic skin with lack of lustre and radiance in contrast to youthful skin. This also contributes to deepening of already existing wrinkles making it prominent and permanent.



(Reference– https://grossepointedermatology.com/conditions–treatment/anatomy–of–facial–aging–2/aging–04–big/)

Premature ageing:

Premature ageing refers to an unnatural ageing phenomenon, occurring due to prolonged sun exposure or following an unhealthy lifestyle. Premature ageing manifests in earlier stages as loss of glowing complexion of skin, followed by dark eye circles, fine wrinkles around eyes, mouth, forehead and drooping skin.

Unnatural ageing is almost always due to poor habits as mentioned below.

1. Excessive sun exposure

2. Some medical conditions like Progeria or those taking medications that age skin.
3. Inadequate sleep
4. Rubbing and pulling the skin around their eyes can damage collagen and cause darkness and wrinkles.
5. Smoking
6. Unhealthy diet leads to weight gain, diabetes mellitus promotes premature ageing of skin. Sudden weight gain or weight loss can also cause wrinkles.
7. Excessive alcohol intake interrupts the skin cell functions and cause premature ageing.
8. Stressful lifestyle leads to inadequate sleep and contributes to premature ageing.

Psychosocial impact of premature ageing of skin:

Older appearance of skin can have a profound psychological impact on people and cause apprehension because of the stigmatization of ageing. They may start feeling dejection, hopelessness, powerlessness, distress, loss of self– confidence, shame, depression, a sense of diminished physical or sexual attractiveness and loss of dignity. Skin ageing can cause various psychosocial disorders like social anxiety, isolation, depression and may also cause discrimination at workplace.

Graceful ageing:

"Ageing gracefully" was being used previously for those who accept the ageing changes without undergoing any aesthetic procedures. But in today's world, people have realized merits of aesthetic procedures which can help them maintain their youthful appearance. They can play a significant role by making people look younger and boost their confidence.

Ageing gracefully doesnot intend that wrinkles should be accepted with pride – instead, it means to follow measures to change your external appearance and match it how you feel internally

The following are crucial tips recommended to help in ageing gracefully

1. Regular Exercise
2. Healthy diet
3. Adequate Sleep
4. Good mental health
5. Avoid alcohol and smoking
6. Adequate hydration of skin by frequent use of moisturizers.
7. Adequate use of sunscreens.
8. Regular follow–up with your dermatologist and physician.

Management

A comprehensive approach to healthy lifestyle and skin care can help to prevent premature skin ageing as well to reduce appearence of skin ageing.

Management of ageing skin can be considered under 3 levels:

- **Primary Intervention:** It involves risk factors which contribute to ageing as below;
  1. Adequate use of proper sunscreen, moisturizers
  2. Avoid extrinsic factors like sun exposure and environmental pollutants
  3. Avoid Stress
  4. Avoid excess of alcohol

5. Lifestyle: Lifestyle changes help to reduce the external causes of skin ageing should be done to reduce oxidative stress.

6. **Nutrition:** A healthy diet containing antioxidant rich fruits and vegetables, helps to reduce the skin damage due to free radicals. Foods in rich in antioxidants are: carrots, other orange and yellow fruit and vegetables, blueberries, green leafy vegetables, tomatoes, beans and other pulses, oily fish (such as salmon) and nuts.

7. **Smoking**: Strict avoidance of smoking can prevent damage due to nicotine and maintain healthy skin.

Skin care

A good and regular skin care practice is a vital part of a comprehensive approach to treat and prevent skin ageing: wrinkles, pigmented spots, loss of elasticity, loss of volume and age induced dryness.

A basic skin care routine comprises three steps: cleansing, caring and sun protection.

- **Cleanse:** Regular cleansing using mild cleansers should be done to remove any make–up, dirt and any chemicals from the skin. This is vital, as chemicals due to pollution can trigger oxidative stress in your skin. Recommended cleansers according to season, help skin to kind of breathe better.
- **Care:** Creams containing Hyaluronic acid, ceramides, Glycolic acid and fruit extracts can be used to replenish and hydrate your skin. These agents address ageing changes seen in your skin.

- **Protect:** The very important step to prevent premature skin ageing is protection of your skin from sun induced damage. Adequate amount and frequent application of sunscreen daily, even on cloudy days and while indoors is essential to protect your skin from sun damage.
- **Creams with colour pigments:** People with uneven skin tone can use these creams to correct your complexion. A tinted calamine containing lotions can help you even your skin tone.

Secondary intervention:

It involves early detection and treatment to prevent or reduce changes in the ageing skin. It involves various medical therapies.

Tertiary intervention:

It involves both medical and surgical therapy.

Successful rejuvenation of face requires proper scaling of age related counter changes (bony prominences and soft tissue changes) and textural changes (superficial and deep wrinkles, pigmentary changes and loss of skin elasticity). Based on above changes dermatologist can offer individualised treatment plan to give youthful and natural looking skin.

There are various treatment options ranging from Anti–ageing creams, Super?cial and Medium peels, Non–ablative facial rejuvenation, Laser and fractional resurfacing, Botulinum toxin type A injections, Fillers to new generations of cosmoceuticals.

The ageing process can have array of changes requiring combination of therapies.

1. Superficial rejuvenation is by chemical peels, microdermabrasion and non–ablative lasers.
2. Deeper rejuvenation is by fractional lasers, non–ablative facial rejuvenation lasers, PRP, micro–needling, medium depth and deeper peels, HIFU, RF and thread lifts.
3. Soft tissue loss is treated safely and effectively by Fillers and fat transfer.
4. Botulinum toxin– not only corrects dynamic wrinkles but also counters and sculpts the face

With ageing, skin functions deteriorate and can results in palette of diseases like dryness, infectious diseases and benign, premalignant and malignant tumours that can jeopardise life which needs consultation by expert and appropriately treated.

Regular monitoring of ageing skin and supervised treatment by a dermatologist is necessary along with adequate routine skin care.

Declaration of Interest: None

Acknowledgement:

Images have been taken for public health education reasons, from the websites mentioned below images.

(Ps: Some of the information taken from our website: www.cutis.org.in)

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20

Speech, Language & Swallowing

Dr S P Goswami*,
Chaitra V & Khyathi G Jain

Speech, Language, Swallowing and Hearing is refined as age advance from birth and stabilizes by puberty. However, after 50 years onwards several obvious physiological changes take place and keep changing as the decades of life increases. Some may become subtler other may become more obvious effecting the overall activity, participation and productivity of an individual. The changes can be in terms of speed as well in performance–based speech, language, swallowing and hearing tasks. One need to keep in mind that the speech, language, swallowing and hearing changes in some individual may be very slow and in others quite rapid. Slow changes are considered as age associated impairment which may

not have much impact on the overall quality of life an individual, however rapid changes not only affect the quality of functioning of an elderly person but also adversely impact on other family members.

Speech

A number of changes in the speech of normally ageing adults have been observed. However, age–related changes in speech have received little attention.

Slowing of rate of Speech

Speech is peripheral in nature and production of speech depends on the lung capacity of an individual and movement of various active articulators (tongue, soft palate, lips). This is quite evident after the age of 60 years however; one need not worry as it is normal physiological process.

- As age advances, the lung capacity reduces, resulting in decrease in the pace of speech production. i.e. the rate of speech may be slowed; number of words or sentences uttered per minute may come down.
- Problems in persons with respiratory issues such as asthma may be more evident.
- Speech flow in terms of pace results, in increase in pause duration, which is normal, however any blocks, hesitance affects the quality of verbal output are some of the red flags.

Clarity of Speech

- Clarity of speech may get affected if, teeth are lost or using dentures which are uncomfortable. Speech

sounds produced when tongue touches the teeth such as saying 'thirteen' may be affected if front teeth are lost.

- It will also get affected if there are mouth ulcers or any other issues in the oral cavity of an individual.
- If there are no issues with oral cavity and teeth this could be due to some neurological disease which requires immediate attention. In certain neurological conditions, speech becomes slurred and overall intelligibility of verbal output is affected.

Voice

As we age, changes will happen in the small sized voice box. This is due to changes in the structure of larynx where the muscles are weakened. In terms of voice,

- The voice of elderly person may become little breathy and strained.
- Reduced ability to change pitch and loudness
- Other changes include voice tremors, lump like feeling in the throat
- Very obvious can be roughness or hoarseness in voice.

Language in Elderly

Language abilities improve till middle age and starts to decline progressively. Few aspects of language production are noted maximally by older adults which may involve one or all the domains of language, when they are addressed on their problems in daily cognitive functioning. This change might be negligible to mere observers but when you compare over a period of time it would have made a tremendous change in the elderly

person. Changes in language in old age involve practical and theoretical significance. This could be because language production is a pivotal component of interpersonal communication. If elderly persons have greater difficulty in understanding, then monitoring of their own language might be affected, letting them through more errors. Interpersonal communication is disrupted when ageing impairs language production and thus aiding to social isolation.

Naming level

It is known fact that as we grow old our memory also becomes poor. Language and memory are related aspects.

- Older adults have difficulty with retrieving information from memory
- There could be decline in naming ability
- Older adults may have learned to compensate by initiating responses or avoiding items that might produce difficulty.
- Producing names of a specific category within a time period becomes poor as we old.

Sentence level

- Elderly individuals are less likely to start difficult sentences.
- Elderly individuals may avoid grammatical forms and syntactic structures that necessitate high memory demands.
- Limited use of complex structures that require storage of larger units for later processing.
- Elderly individuals may use shorter length of sentences.

SWALLOWING IN ELDERLY

Swallowing is an important aspect of our daily routine. Eating is a social function as well as a nutritional necessity. There are many aspects resulting in variety of changes that worsen the swallowing function with ageing. Even the minor changes in the swallow function are to be noticed by us. The prevalence of swallowing difficulties i.e., dysphagia increases with ageing in such a way that 10–20% of individuals older than 65 years are projected to manifest swallowing difficulties. These difficulties can be as a part of ageing or secondary to various disorders like stroke, cancer, dementia and many more other disorders related to senility.

How do I know if I have swallowing problem?

Swallowing in not as simple as it looks so to us. It involves three phases. Change can be in any phase and may go unnoticed to the person may ignore thinking it is usual in old and not to worry or do anything about it unless and until it is risk to life. Even the slightest change can make a greater impact in long term, affecting health. Hence, it is necessary to look into the various signs that can help you to know if you have swallowing difficulties.

How does ageing affect one's swallowing ability?

When the intake of food is reduced due to various issues there will be undoubtedly a lower level of physical activity leading to loss of strength and energy to do anything. Once, the activity has reduced, greater decline in functional status will be observed. Thus, the chances of admission to hospital will be higher leading to a poor quality of life. See Table

- ✓ Incomplete airway closure leading to aspiration of food
- ✓ Consistency of food might have to be changed
- ✓ Pre mature spilling of food down the throat
- ✓ Increase in acidity levels leading to gastric reflux problems
- ✓ Reduction in mass and strength of muscles of chewing
- ✓ Changes in taste, moisture and smell acuity of food
- ✓ Elevated risk of malnourishment and nutritional deficit
- ✓ Susceptible to pneumonia due to long standing dysphagia
- ✓ Range of motion of all the structures of oral musculature are reduced
- ✓ Fatigue on chewing
- ✓ Multiple swallows to clear the oral cavity

What to do now?

One or many of the above listed changes are indication for you to consult a professional. Dysphagia management becomes very important because of the impact it has on various aspects of an individual's life. It jeopardizes the health status of elderly individuals to a great extent. Management of Dysphagia is a 'team event'. Number of professionals like neurologist, physiotherapist, dietician, psychologist, radiologist invariably contribute to the treatment of dysphagia symptoms in the patients. Speech–language pathologists (SLP) play a prime role in the

rehabilitation of patients with dysphagia and associated morbidities when behavioral management and therapy is concerned. Additionally, no single strategy is suitable for all elderly patients with dysphagia. Depending on the type and severity of your problem, your speech language pathologist will suggest the most appropriate management, which will help you with your everyday swallowing needs. Compensations are considered as short–term alterations to the patient, food or liquid, or environment. Wherein, the main goal is to maintain nutrition and hydration requirements until the patient can do so independently. Few patients may need more direct, strong focused management strategies to rehabilitate impaired swallow functions.

Hence, it is advisable that even the slightest change you observe in the swallowing consult a nearest speech language pathologist or get referred to one from your general physician immediately.

The audiologist and speech language pathologist are the right professional to approach as your one stop solution for all the problems that may occur for your speech, language, swallowing and hearing.

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A

Acknowledgements to the Reviewers

Reviewer 1: Prof C R Chandrashekar

Dr C R Chandrashekar is currently Honorary Consultant Psychiatrist at Samadhana Counselling Centre, Arekere MICO Layout, I stage Bannerghatta road, Bangalore. He is former Professor of Psychiatry and also Deputy Medical Superintendent at NIMHANS, Bangalore.

He has written

– More than 1000 articles in periodicals and magazine;

–more than 280 books in Kannada on Health and Ill health;

– more than 30 books in English on Health and Ill health;

– 4 books are translated to Telugu;

– 3 books are translated to Urdu;

– 1 book is translated to Gujarati;

– 2 books are translated to Hindi;

– Edited more than 100 books on Health & Personality Development

Awards: More than 60; To list a few....

- Honorary Fellowship of Karnataka Science & Technology Academy 2020
- Life Time Achievement in Science (STEAM) Communication in Kannada 2020
- Karnataka Sahitya Academy Award – 1980 and 2003
- Dr B. C. Roy Award by I.M.A Bangalore – 1993
- U.G.C. Award – 2001
- Kannada Sahitya Parishanth Award – 2001
- National Award by Government of India – 2002
- Dr K. Shivarama Karanth Award – 2002
- Kuvempu Award – 2002
- Kempe Gowda Award by Bangalore Corporation – 2002 and 2012
- Eminent Psychiatrist Award by Indian Psychiatric society, Karnataka Branch – 2006
- Rajyotsava Award by Government of Karnataka – 2010
- Manava Ratna Award – 2011
- Dr.Anupama Niranjana Award for Kannada Medical Science Literature given by Government of Karnataka – 2012
- Eminent Psychiatrist Award by Indian Psychiatric society, South Zone, 2016
- Times Of India Health Excellence Award 2018.

Dr C R Chandrashekar despite his busy schedule of consulting patients, he has managed to review all the chapters and have given valuable opinion. Our team is grateful to him for his unconditional support, here for

this book. He is known to hardly take breaks, always into work and we could say work is his hobby, which he enjoys, that is gain for the community. He has trained hundreds of lay counsellors, who are serving the community, supporting the cause to improve mental health of people.

*

Reviewer 2; Mr Kantharaj ML

Mr Kantharaj ML is a 71 Years Young, Graduate in Science, Law, PG in Business Management. Presently he is working As Managing Director, in Animal Feed & Nutrition Co, with a rich experience of 49 Years. He is a very active member of Rotary and several other Voluntary Organisations.

He says "As we grow elder, we slowly move away from our Children, we are left with our spouses to take care. We have to be engaged with hobbies like reading, listening to music or cooking. Do Social service in temples, hospitals, help the aged & children. Build your own Group of Friends. LIVE TILL YOU DIE, LIVE HAPPILY & LEAVE HAPPILY".

Mr Kantharaj is well known in South Bengaluru for his enormous voluntary work. He is supporting his daughter (Nayana) in her Yogabimba, teaching Yoga through to many people in Nagarbhavi area in Bengaluru. He is also an example of working hard.

He is also an example of someone who believes work is kind of a hobby, and always busy, enjoying his work. Our team is grateful for taking his time off, and supporting us by reviewing articles and suggesting revisions to improve readability

Reviewer 3: Dr Usha Vashtare

Dr Usha Vashtare is the Founder of YogaKshema Rehabilitation & Wellness Center. (www.yoga–kshema.org) She is a Neuroscientist, teacher, writer, and social worker.

She completed her B.Sc with rank and gold medal from Bangalore University, M.Sc with rank from Bangalore University, and PhD from Mysore University. Her PhD thesis was nominated for President's award.

She was a faculty at Temple University School of Medicine for 17 years. Subsequently she worked as Clinical Project coordinator, Parkinson's Disease and Movement Disorder, Pennsylvania Hospital, which honoured her with the Service Excellence Award.

Dr Usha has contributed to 5 books which were used as part of Continuing Medical Education course. She has published more than 70 research papers & abstracts in reputed journals. She was academic Research Advisor for MDs, Post–Doctoral Fellows, PhDs & Masters students, and has been trained in hospice care for terminally ill. She has presented papers in many international conferences and has been interviewed on several TV channels in India and radio channels in India and USA.

She is involved in extensive service projects both in India and USA for over 10 years and is associated with several organisations and institutes.

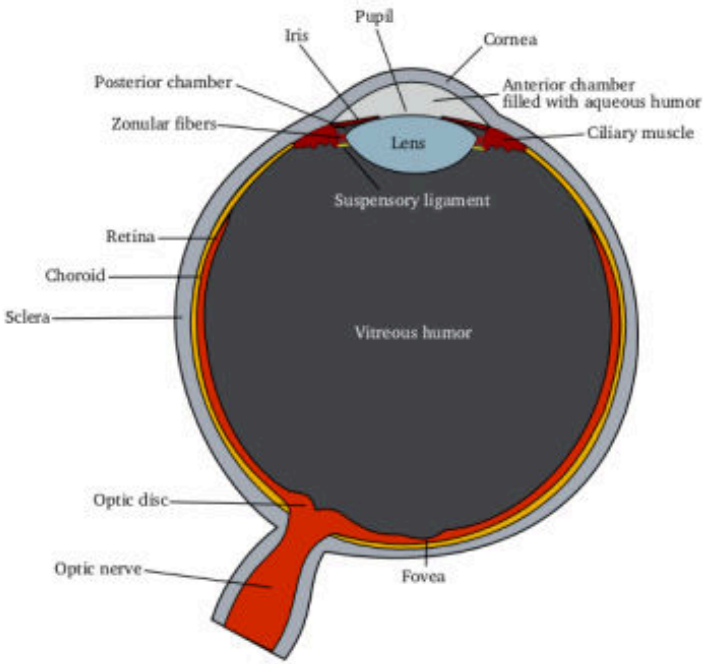
Dr Usha Vasthare has facilitated over 400 support group meetings at YogaKshema and conducted several workshops on Mind Training, Mindful Living, Healthy Living, Overcoming Automatic Negative Thoughts (ANTs),

Forgiveness, Improving interpersonal relationships, Depression, Stress Management and various other topics. Her interest is in bringing the latest research in the field of Neuroscience & Evolutionary biology to the doorsteps of common people. Her interest is to bring Science & Spirituality together for Holistic Living.

Dr Vasthare is an extraordinary talent, a dynamic leader, and known to work intensively, for cause of mental health promotion. Our team is grateful for her contribution in the improvement of the chapters, with her review and giving her valuable suggestions.

*

ANNEXURE A: COLOUR IMAGES



1.4.1
Schematic diagram of human eye
Page No.39

Image source courtesy:
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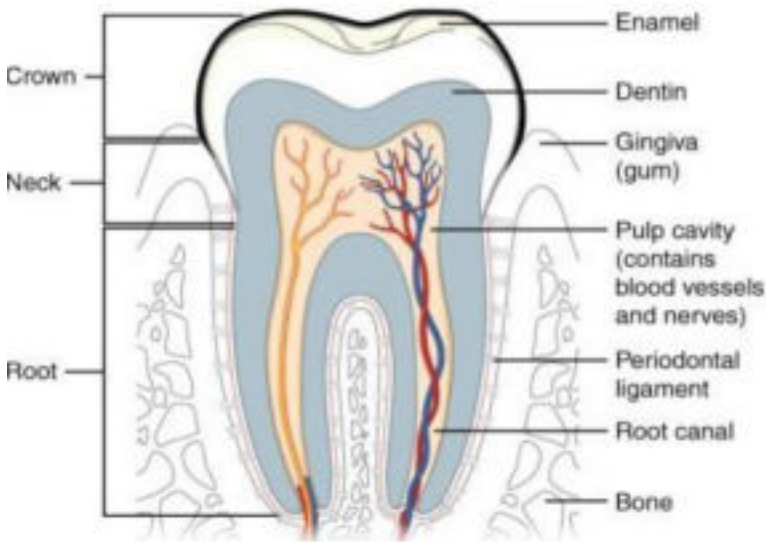

1.17.1

Teeth

PageNo.154

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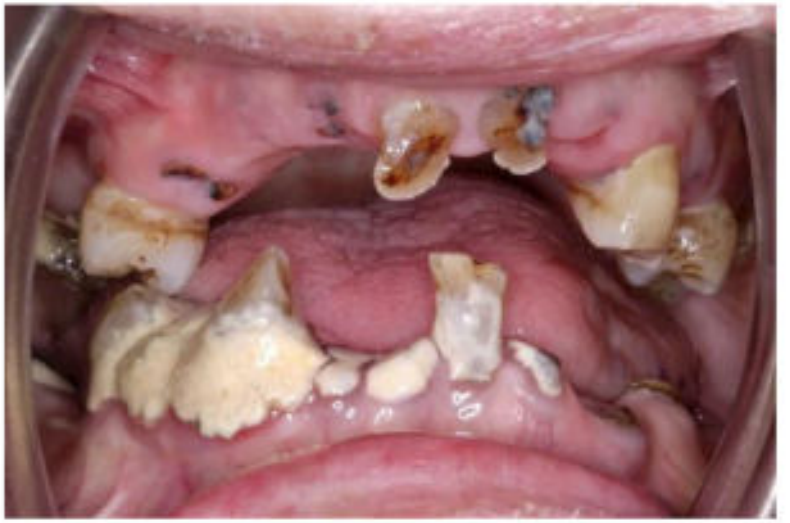

1.17.2

Calculus deposit it around the teeth

Page No.156

Image courtesy:
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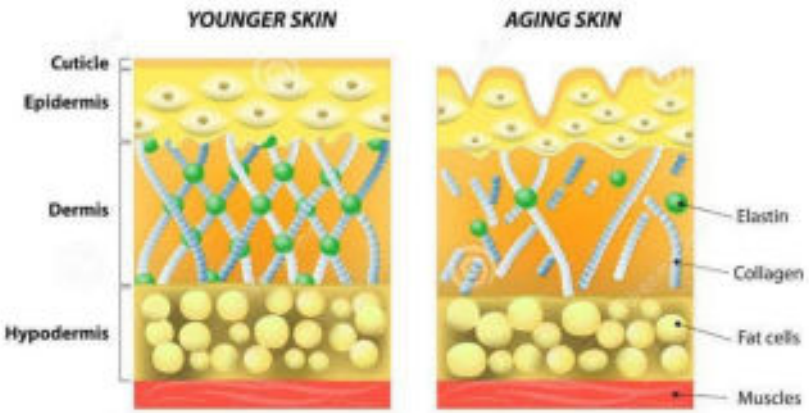
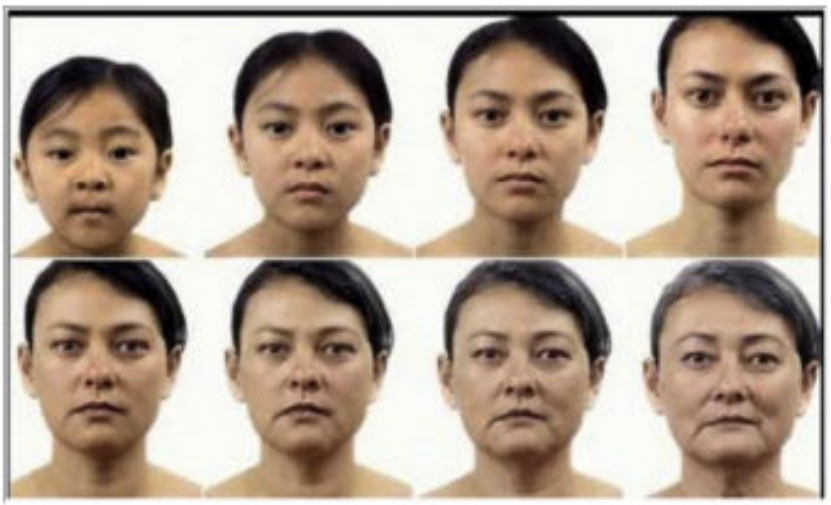


1.19.1

Younger Skin & Ageing Skin

Page No.175

Image Reference:
https://www.dreamstime.com/stock-illustration-younger-skin-older-skin-aging-elastin-collagen-diagram-aging-showing-decreasecollagenimage47370344

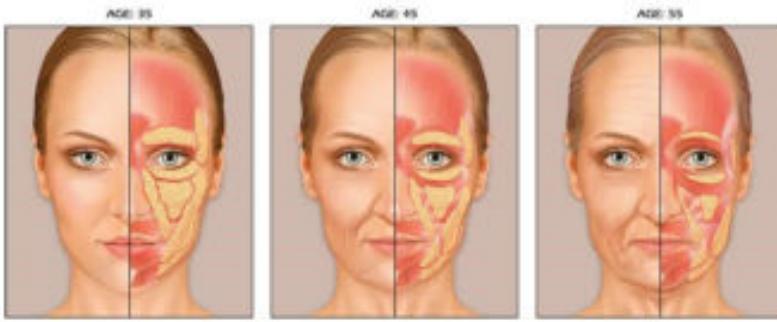


1.19.2

Signs of skin ageing

Page No.176

(Reference – https://youtu.be/uBiAq6uO7J8)



1.19.3

Anatomy of facial ageing

Page No.177

Reference:
https://grossepointedermatology.com/conditionstreatment/anatomy–of–facial–aging–2/aging–04–big/

Chapters
Volume–II

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8P6, 3rd A Cross, Kasturinagar, Banaswadi, Bangalore 43 | www.stopelderabuse.in

Geriatric Clinic and Services, National Institute of Mental Health and Neurosciences (NIMHANS) has initiated 'VayoManasa Sanjeevani' program in October 2020 to promote the mental health and well-being of senior citizens. This initiative supports the "United Nations Decade of Healthy Ageing" from 2021-2030. The 'VayoManasa Sanjeevani' program is actively involved in promoting awareness on ageing and mental health, training of geriatric caregivers, volunteers and lay counsellors in geriatric mental health, psychosocial intervention and support in old age homes, improving the access for mental health care through tele-geriatric mental health services and promote healthy ageing through holistic and integrative medicine. The publication of "Insights for Healthy Ageing" to promote public awareness on ageing and mental health is an important milestone in the mission to promote healthy ageing through the 'VayoManasa Sanjeevani' initiative. Please visit https://vmsnimhans.in to know more about the 'VayoManasa Sanjeevani' and the activities implemented through this initiative.

Dr Vijaykumar Harbishettar is a Consultant Psychiatrist, with special interest in Ageing & Dementia. He has trained & worked as a Consultant in United Kingdom & National Institute of Mental health and Neurosciences (NIMHANS). He is currently the Editor-in-Chief of the 'Journal of Psychiatry Spectrum' published by the Indian Psychiatric Society- Karnataka Chapter.

Dr PT Sivakumar is the Professor and Head, Geriatric Psychiatry Unit, Department of Psychiatry, National Institute of Mental health and Neurosciences (NIMHANS). He is the Nodal officer for the 'VayoManasa Sanjeevani' initiative, Karnataka State Resource Centre for Senior Citizens and Legal Services clinic for Senior Citizens at NIMHANS.

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