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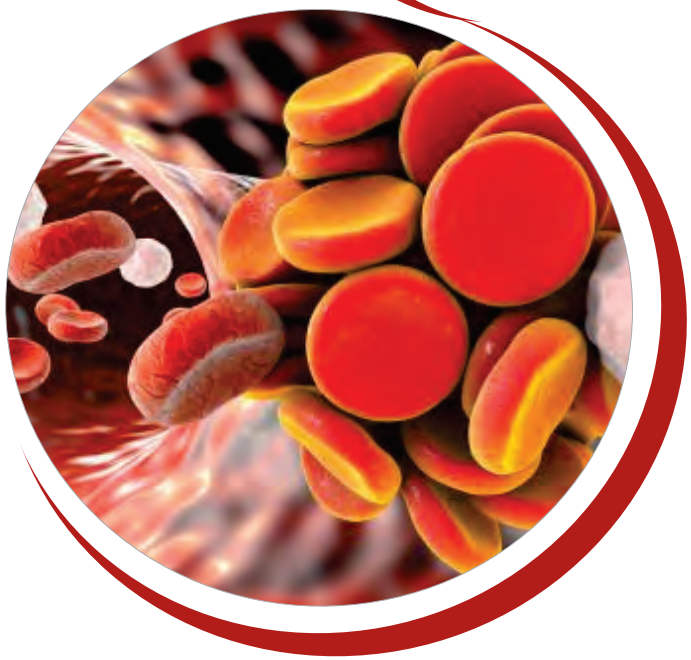

HIGHLIGHTS

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Editorial

Prof. Bindu Menon
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The world's population is continuing to mature very rapidly. The population over 60s now makes up over 10%, and by 2050 this is likely to rise to over 20%. Stroke remains a major cause of mortality and morbidity among elderly. The risk factors and mechanisms of ischemic injury differ between young and elderly patient. Atrial fibrillation and congestive heart disease, both of which dramatically increase in prevalence with age.[1] *Watershed infarction is more common in the elderly than in younger groups. Older patients with stroke have severe stroke at presentation and also tend to recover slowly than the younger population.*[2] *Moreover silent strokes are common in the elderly, which also leads to multi infarct dementia.*

Stroke care tends to differ and elderly tend to receive lower quality of care than younger patients with stroke and are less likely to be treated with guideline-recommended stroke therapies.

The prevalence of stroke in India will also rise with the growth of the global elderly population. Age being the most important risk factor for stroke, future research should focus on acute stroke care in the elderly to reduce the incidence and improve quality of care and improving outcomes in this vulnerable group.

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REVIEW ARTICLE

Dementia in Elderly Population

PN RENJEN

Abstract

Dementia has been a major concern in geriatric population. Dementia impacts personal, family, and societal life. It reduces life span, induces caregiver's strain at family level, and utilizes health care facility, inflicting strain on national income. India has a unique situation characterized by rapid epidemiological transition leading to increasing ageing population and higher prevalence and incidence of noncommunicable diseases such as stroke and cardiovascular diseases, similar to other developing countries in the world. The diagnosis of dementia relies greatly on clinical assessment that includes collaborative history and exclusion of contributing conditions.

Keywords: *Dementia, Geriatric, DSM, Memory*

INTRODUCTION

Dementia is usually a disease of the elderly and is characterized by progressive loss of memory and other mental faculties such as language, judgment, and planning, impairment of daily activities, and deficiency in social interaction. Dementia has been a major concern in geriatric population. Dementia impacts personal, family, and societal life. It reduces life span, induces caregiver's strain at family level, and utilizes health care facility, inflicting strain on national income. It is expected that the burden of dementia will be increasing in developing countries due to increase in longevity and increasing prevalence of risk factors such as hypertension and stroke and lifestyle changes.[1,2] Dementia has a major impact on the lives of those with the condition, their families and carers. It is a disorder that presents many challenges to health professionals throughout the pathway of care, from early diagnosis to end of life. There are many criteria to describe the clinical features of dementia, but the underlying features emphasise a condition that is acquired, characterised by multiple cognitive impairments, and represent a decline from previous function.[3]

Recent Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM V) criteria describe cognitive impairment and dementia in the realm of neurocognitive disorder. An essential part of assessment is exclusion of depression or delirium that may mimic cognitive decline. The main underlying causes of dementia in older people include Alzheimer disease (AD), vascular cognitive impairment (VCI)/ vascular dementia (VaD) and dementia with Lewy bodies (DLB). It is increasingly obvious from neuropathological studies that dementia in older age reflects more than one pathological state.[4] India has a unique situation characterized by rapid epidemiological transition leading to increasing ageing population and higher prevalence and incidence of noncommunicable diseases such as stroke and cardiovascular diseases, similar to other developing countries in the world.[1] Fortunately, the published Indian literatures on various aspects of dementia have been on the rise, but still far short of the actual need.[5]

EARLY DIAGNOSIS OF DEMENTIA

The benefits of early investigation and diagnosis include identification of treatable physical and psychiatric causes, treatment of comorbid conditions, initiation of psychosocial support, and instigation of pharmacological symptomatic treatments. However, early recognition is not easy because of the insidious and variable onset of the syndrome, which emerges through the personality of the individual, sometimes without a clear demarcation until late in the disease process. Patients, families, and general practitioners may all be reluctant to diagnose dementia because it is such a serious and largely unmodifiable disease that still carries a huge

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burden of stigma. Physicians may unconsciously hesitate to label a patient as such, and family members may gradually take over social roles from the patient, protecting him or her from difficulties in daily life, but also delaying the conscious recognition of the disorder by offsetting impairments.[6]

EPIDEMIOLOGY

The World Health Organization (WHO) predicts that by 2025, about 75% of the estimated 1.2 billion people aged 60 years and older will reside in developing countries.[7] It is estimated that the number of people living with dementia will almost double every 20 years to 42.3 million in 2020 and 81.1 million in 2040.[8] The prevalence of dementia of rural population in South India and that in North India showed a widely varying rate from 3.39 to 0.84%, respectively. The differences may be true considering the multi-ethnic, multicultural, and environmental differences.[5]

MILD COGNITIVE IMPAIRMENT

Mild cognitive impairment (MCI) is a transitional phase between normal ageing and dementia. Understanding MCI is important, and many cases may progress to dementia, though some may revert to normal cognition. Very few studies on MCI have been carried out in India. One of these was a communitybased study and another was a clinic based study.[9] The community prevalence of MCI in India is about 14.89% (95% CI: 12.19–17.95%) and that of multidomain type (8.85%) was higher than amnestic type (6.04%). Interestingly, this data is comparable to a study from a developed country.[10]

RISK FACTORS FOR DEMENTIA

The major proven risk factors for dementia are age and genetic predisposition, including ApoE4.[11] However, emerging research indicates that several risk factors, initially thought to predict VaD are also associated with AD. These common conditions of midlife include hypertension, diabetes mellitus, atrial fibrillation, carotid artery disease, obesity, hyperlipidaemia and hyper-homocysteinaemia. Other factors being recognised as risk factors for dementia, including AD, are head injury associated with loss of consciousness depression, post-traumatic stress disorder, smoking and use of anticholinergic medications.[11] Those of higher education are less likely to develop dementia,[12] but there is conflicting evidence as to whether education affects rates of cognitive decline or merely provides a cognitive reserve. In addition promotion of cognitively stimulating activities, such as reading, playing games, doing crosswords and others, is supported by limited data documenting improvement in everyday activities.[13]

PSYCHOLOGICAL SYMPTOMS OF DEMENTIA

Though cognitive symptoms are the main focus for diagnosis and management of dementia, recent years have seen growing importance of BPSD (Behavioural and psychological symptoms of dementia) particularly from the point of management, caregiver's burden, quality of life, and outcome of dementia. However, most of the studies have been carried out in developed countries. Recently some studies have also been done in the developing countries including India by the 10/66 group.[14] This group reported that at least one BPSD was present in 70.9% of cases and the commonest psychiatric abnormalities were depressive syndrome (43.8%) followed by anxiety neurosis (14.2%) and schizophreniform/paranoid psychosis (10.9%.).[14]

VASCULAR DEMENTIA (VaD)

The term VCI (Vascular cognitive impairment) was coined to encompass a spectrum of disease that includes subtypes described on the basis of clinical and radiological findings, ranging from mild cognitive impairment, to VaD and mixed neurodegenerative dementia (e.g. AD and VCI). Underlying causes of VaD may include post-stroke dementia, multi-infarct dementia, subcortical dementia, strategic infarct (e.g. thalamic region), hypoperfusion and hereditary causes e.g. CADASIL.[15] Vascular dementia is one of the two most prevalent forms of dementia. Studies have demonstrated that post-stroke dementia (PSD) increases the risk for recurrent stroke and mortality.[16] Post-stroke dementia (PSD) is defined as the presence of dementia identified at three months after an acute, either recurrent or first-ever, stroke. A stroke increases the risk of dementia four to 12 times. The prevalence of PSD among stroke patients varies from 6% to 55% and may decline years after stroke.[17] In a recent Indian study, it was found that up to 72% of patients had some form of cognitive impairment after a stroke of which 30% had dementia and 42% had CIND (cognitive impairment no dementia). Neuropsychological assessment should be an important part of the clinical evaluation in stroke patients but it is best done after about three months once the stroke has stabilised. Secondary stroke prevention could reduce the incidence of vascular dementia. This can be done by aiming at the modifiable risk factors for stroke, such as hypertension, diabetes, dyslipidemia, hyper-homocysteinemia, and smoking.[18]

MANAGEMENT OF DEMENTIA

There are several cognitive screening tools commonly used in clinical practice, including Mini-Mental Status Examination (MMSE) and Rowland Universal Dementia Assessment Scale (RUDAS). The MMSE first developed in 1975 has been subject to many validation studies; however, limitations include educational and cultural bias, lack of questions to assess executive function and, more recently copyright issues.[19] There is no cure or medication to slow progression of AD, but symptomatic benefit is available with acetyl cholinesterase inhibitors (AChEI) (donepezil, rivastigmine and galantamine) and memantine, which is a N-methyl-Daspartate partial antagonist. AChEI have shown modest symptomatic improvement in cognitive function, global outcome and activities of daily living. Around 40–50% of people with AD respond symptomatically, although clinical markers to indicate those most likely to respond are not established.[20]

Treatment options of VaD have been disappointing. Aspirin has not been shown to be effective, despite its benefit in secondary prevention of stroke, yet many patients are treated, despite adequate evidence. AChEI have been shown to provide modest improvement in outcomes, although likely confounding of associated AD limit interpretability. Memantine confers mild improvement in cognitive scores, but no substantial improvement in function. In Australia, neither drug is subsidised on pharmaceutical benefits scheme for VaD. Other medications, such as calcium channel blockers have not proven useful to date, although there is evidence that preventive measures may be beneficial, for example, a sub-study of the Perindopril Protection against Recurrent Stroke Study revealed less progression of white matter hyperintensities with aggressive antihypertensive treatment.[21]

CONCLUSION

Dementia is a condition that is common in the elderly and frequently contributed to by multiple pathologies and comorbidities, including delirium, depression and polypharmacy. The diagnosis of dementia relies greatly on clinical assessment that includes collaborative history and exclusion of contributing conditions. India lacks much information such as incidence of VaD which is basically avoidable by preventing stroke and controlling its risk factors such hypertension, diabetes, smoking, and dyslipidemia. It is expected that without autopsy validation of dementia diagnosis, the true picture of underlying disease burden cannot be estimated.

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The Role of Vit D Levels to Prevent Falls- Geriatric Care Perspective

K. HARI*, ANITA NAMBIAR**

Abstract

Falls are one of the major problems in the elderly and are considered one of the "Geriatric Giants". Falls represent the commonest accident of daily living and are the leading cause of accidental death in the elderly. The prevalence of vitamin D insufficiency is estimated between 40% and 50% in non-fallers over the age of 65 and up to 70% in fallers. Vitamin D supplementation of at least 700UI per day might reduce the risk of falls amongst older adults by 19%.

Keywords: *Vit. D, Postural rehabilitation, Musculoskeletal strength, Navigational abilities.*

The number of persons above the age of 60 years is fast growing, especially in India. India as the second most populous country in the world has 76.6 million people at or over the age of 60, constituting above 7.7% of total population. The major area of concern is the health of the elderly with multiple medical and psychological problems. Falls are one of the major problems in the elderly and are considered one of the "Geriatric Giants". Recurrent falls are an important cause of morbidity and mortality in the elderly and are a marker of poor physical and cognitive status. It is estimated that nearly 1.5 to 2 million persons are injured and 1 million succumb to death every year in India. A study done by Gururaj has found that road traffic injuries are the leading cause (60%) of traumatic brain injuries followed by falls (20%-25%) and violence (10%) in India.[1,2]

According to the WHO, a fall can be defined as the action of finding oneself involuntarily on the ground. The prevalence of falls in the elderly is high and strongly correlated with age, increasing from 30% in subjects over the age of 65 to 50% in subjects over the age of 80.

Falls represent the commonest accident of daily living and are the leading cause of accidental death in the elderly. Maintenance of posture and balance during motor activities thus involves the reception and integration of multiple sensory afferents which inform the central nervous system (CNS). Reception and processing of all sensory information are ensured by the CNS, which responds by inducing a series of muscle contractions resulting in a series of coordinated movements, corresponding to adapted complex motor behavior. It has been suggested that the specificity of the mechanism of falls in the elderly, particularly the impairment of postural reactions - either altered or delayed - could partly explain the higher incidence of hip fractures compared to wrist fractures after the age of 75 years.The inappropriate nature of postural reactions, either responsible for or occurring during a fall, is due to an abnormality of processing of musculoskeletal mechanisms and of sensorimotor information in the CNS.[3]

The study by Krishnaswamy and Shanthi has indicated that musculoskeletal problems like osteoarthritis, rheumatoid arthritis, myopathy secondary to hypothyroidism, cervical and lumbar spondylosis were the cause for falls in elderly. Neurological illnesses, which cause deterioration of sensorimotor function of muscle, contribute to falls.[4]

Vitamin D is a fat-soluble vitamin synthesized from a cholesterol derivative. For a long time, the main role of vitamin D was considered to be the regulation of calcium and phosphate metabolism, in which bone was the main target organ and its action was considered to be limited to cell turnover by increasing the life span of osteoblasts by an anti-apoptosis effect. It exists in two forms: vitamin D2 or ergocalciferol, which is produced by irradiation of ergosterol (provided by the diet) by the action of ultraviolet (UV) radiation in the skin, and vitamin D3 or cholecalciferol provided directly by foods or produced by the action of UV from cholesterol to form calcifediol which is hydroxylated into calcitriol or 1, 25-dihydroxyvitamin D (1, 25 (OH) D) which

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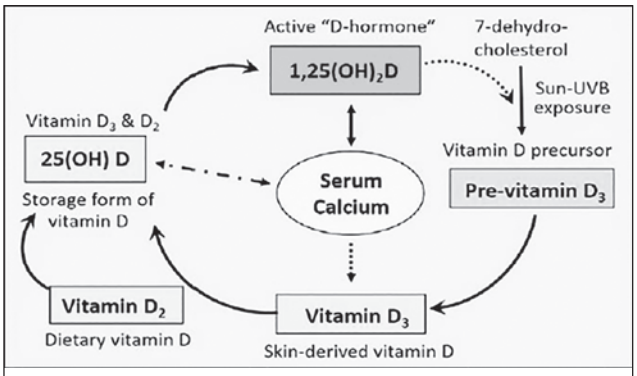

Figure 1: Generation of Active form of Vit. D

is the active form of vitamin D.Thus, the serum 25(OH)D concentration is the best available clinical indicator of vitamin D status. (Figure 1)

The prevalence of vitamin D insufficiency is estimated between 40% and 50% in non-fallers over the age of 65 and up to 70% in fallers. In addition, the majority of data published over the last 15 years demonstrated the existence of a significant effect of vitamin D supplementation on fall reduction. The most recent meta-analysis by Bischoff-Ferrari *et al*. demonstrated that vitamin D supplementation of at least 700UI per day might reduce the risk of falls amongst older adults by 19%. Because of the high correlation of falling with alterations in strength, gait and balance, vitamin D presents an emerging and effective approach to improve musculoskeletal strength, function and navigational abilities.[5]

Vitamin D deficiency can lead to muscle fiber atrophy, slow peak muscle contraction, prolonged time to relaxation and increased risk of chronic musculoskeletal pain. Deficient states have also been linked to generalized musculoskeletal pain, significant myopathy, muscle weakness, hypotonia and resultant gait abnormalities. Vitamin D has both direct genomic and non-genomic effects on skeletal muscle tissue.

The receptor for vitamin D (VDR) is found in skeletal muscle (among various other tissues) which upon activation promotes de novo protein synthesis in muscle. The proteins synthesized are responsible for events such as calcium influx and muscle fiber differentiation and proliferation. Type II muscle fibers play a key role in falls because they are the first to be recruited when the body reacts to prevent a fall.[6]

Therefore, Vitamin D supplementation can do the following: reverse the atrophy seen in Type II fibers decreasing fall risk by 20% in both institutionalized and non-institutionalized individuals, improve proximal muscle weakness and body sway associated with gait impairments,

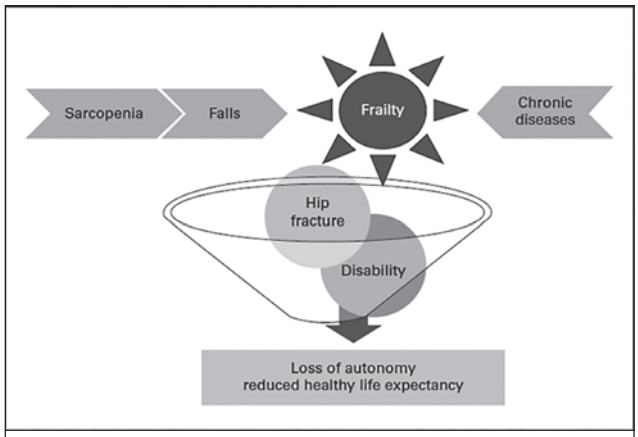

Figure 2: Role of Vit D in Prevention of Frailty & Improving Healthy Life Expectancy.

increase muscle strength/function and balance, reduce and reverse myalgias, and decrease muscle protein degradation (Figure 2).

In prospective studies, lower serum 25(OH)D levels have been associated with decreased grip strength and appendicular muscle mass in older men and women. Supplementation with vitamin D has improved lower extremity muscle performance and reduced risk of falling in several high-quality double blind RCTs. In another data, vitamin D supplementation (700 to 1000 IU per day) reduces the risk of falling by 34% in a meta-analysis of 8 double-blind randomized controlled trials. Thus, Vitamin D improves postural balance, propulsion and also executive functions and navigation abilities among older adults. Vitamin D supplementation not only determines gait performance, but also prevents the occurrence of falls and their complications among older adults.

The prescription of at least 800 IU of vitamin D daily in insufficient elderly subjects is a simple intervention that should be incorporated into new strategies for postural rehabilitation, primary and secondary fall prevention.[7]

Vitamin D supplementation for fall prevention has been recommended as an evidence-based strategy by many recent guidelines. These are Agency for healthcare research and quality (AHRQ) for the US preventive services task force, the 2010 American geriatric society/British geriatric society clinical practice guideline, the 2010 assessment by the IOF, and the 2011 recommendations on vitamin D by the Endocrine society. These guidelines have identified vitamin D as an effective intervention to prevent falling in older adults.[8]

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Getting Old is Mandatory; Feeling Old is Optional

M S SRIDHAR*

Abstract

Development is the overall growth of the person throughout his life span and involves more of mental aspect than physical aspect. Psychological defense mechanisms developed from childhood are to a large extent stable across the life span. However, with advancing age, there is lessening of maladaptive defense mechanisms. Physiological and belongingness needs increase as one becomes old. The onerous task of preparing for Ageing India needs to be shared by all by creating general awareness in the society apart from programmes devoted to a specific cause or the other. The choice is open to everybody to just become old or grow up old and wise.

Keywords: *Collective unconscious, Alienation, Gerontocracy, Dialecticism, Astana declaration.*

Gurubhyo namah. Sarvebhyonamah.

I sincerely thank the Organizers of this Conference for bestowing on me the honour of delivering Dr J J Rao Memorial Oration.

For the Oration, I have chosen the theme of the Conference "Growing old is mandatory, feeling old is optional." The variations of this topic are **"Growing old is mandatory, growing up old is optional"** and "**Growing old is mandatory, development into an elderly is optional."**

Whereas **William Shakespeare** takes a pessimistic view of the old age and holds it as

'Last scene of all,
That ends this strange eventful history,
Is second childishness and mere oblivion,
Sans teeth, sans eyes, sans taste, sans everything.'[1]

Mark Twain holds a pragmatic view,
'Age is an issue of mind over matter.
If you don't mind, it doesn't matter'.[2]

and **Richard Bach** holds a more optimistic view that

'What the caterpillar calls the end of the world,
Master calls it butterfly.'[3]

It is a well known fact that Sanatana Dharma regards life as a dynamic and progressive process of transcendence from realm of matter to realization of supreme spiritual bliss. While the four values and ends of life **'dharmarthakamamokha'** are equally important, dharma takes precedence over others. Dharma is the attitude of treating others in the same way as they would expect others to treat them. Do not do unto others what you do not want others to do to you. Such actions, thoughts and practices that promote physical, mental, and spiritual happiness for one and all are right – ***'atmanah pratikulani paresham na samacharet'.***[4]

A person has to evolve into that level through a series of stages of life or ashramas viz; ***Brahmacharya*** (student), ***Grihastha*** (householder), ***Vanaprastha*** (retired) and ***Sannyasa*** (renunciate).

With adoption of Western Educational model and culture in a very narrow sense without internalizing the finer aspects, materialism or hedonism of Caravaka brand has been revived surreptiously. It is against this background the theme of the Conference is discussed.

The modern view of development depends on the concept of natural endowment and acquired knowledge, attitude and behaviour as a result of nurture and socialization.

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Development implies a series of progressive changes as a result of maturation and experience, the former is related to structure and function of body systems and the latter is in the realm of mental, social and spiritual life of the individual. Thus, the importance of qualitative changes is recognized. Man is driven by a hierarchy of needs, the highest level of which is self actualization or self fulflment. Vedantic view holds that the determinants of life events are due to sanchita, Prarabhda and agami karma. Similarly Lord Krishna tells Arjuna that 'nature compels men to act'.

na hi kascit ksanam api jatu tisthaty akarma-krt|
karyate hy avasah karma sarvah **prakrti-jair gunaih**||

All men are forced to act helplessly according to the impulses born of the modes of material nature; therefore no one can refrain from doing something, not even for a moment.[5] **Carl Jung,** on working of mind talks about '*collective unconscious'*, which he defined as an innate level of the psyche embedded in the shared biology of humankind.[6] This would include memories of the bygone epochs that ultimately shape the man's actions. Scientific formulations also agree that 'development' or emancipation of an individual depends on genetic and environmental endowments. Environmental factors or nurture includes socio-anthropological and cultural experiences of the individual and contemporary politico-economic milieu. Empirically, the determinants of developmental changes are identified as appearance, behaviour, cultural stereotypes, cultural values, social role changes, and personal experiences to name a few. Though there is a general predictable pattern in the development, every person is unique and the early foundations of childhood and child rearing practices have a bearing on how well the individual adjusts to the changes in 'environment' and the early patterns tend to persist. However, they are not totally unchangeable. Guidance, role model, stimulation and reinforcement, training and intrinsic motivation do help for the desirable change. Development of an individual is not without hazards which could be physical, psychological and environmental. Failure to master tasks relevant to the stage of the development may lead to social maladjustment and inadequate mastery of tasks at latter stages.[7] One of the developmental hazards of the contemporary period is bypassing a developmental stage or telescoping of different stages due to fast pace of modern society and undue expectations from the young. This may lead to developmental crisis for the individual and a label of 'inadequacy' which brings down the self esteem of the individual and paves the way for *'alienation'* which is neither conducive to individual's development nor for the social order. Successful mastery of developmental tasks leads to life satisfaction or happiness. Achievement, affection and acceptance lead to happiness. Happiness comprises of feeling well, contended and deriving pleasurable satisfaction as the individual's needs and wishes get fulfilled. In the words of Shaver and Freedman, ***"Happiness is more a matter of how you regard your circumstances than of what the circumstances are… it comes from tending one's own garden instead of coveting one's neighbour's".***[8] Some of the determinants of happiness are good health, physical attractiveness, degree of autonomy, interactional opportunities outside the family, type of work, work status, living conditions, material possessions, balance between expectations and achievement, emotional adjustment, attitude towards the age period, realistic self concept and realistic role concept. Unhappiness in older persons is said to be due to their memories of unhappy childhood and self derogation as adults. The habitual feeling of unhappiness could have serious consequences to the self and in turn to the family and the society.

From the Vedic period, the purpose of life is said to be to uphold Dharma which is defined in Mahabharata as such actions which ensure the stability of the society and the maintenance of social order and the general welfare of mankind. Hence, the four ashramas of life have a continuum of purpose in the form of dhamarthakamamoksha. That older persons contribute to the welfare of the society is made amply clear by Plato when he advocates gerontocracy in his **Republic.**[9]

It is very true that time passes for everyone and each one's age increases in due course. In view of the principle of 'dialecticism', it is also true that the individual will cease to exist one day. So, it becomes important for every thinking and reasoning person to reflect upon how well the life has been lived. The free will of the individual tempered by social, cultural and legal restraints shape the eventful life. If the behaviour and actions of the individual had been approved and reinforced by the family and the society based on normative evaluation, the individual gains mastery over self and his environment and has ample opportunities to negotiate developmental tasks appropriate to his age and stage in life. That becomes true living in contrast to mere existence. In fact, growing older is a privilege which is denied to many. Understanding oneself and getting insight into what the person wants in life is extremely important. That allows the individual to participate in such activities which will help him to reach the desired goal or destination, for what he does in

the present drives his future and it is never too late to start living. William Wordsworth's **'My heart leaps Up'** summarizes how earlier experiences shape the later behaviour.

"My heart leaps up when I behold,
A rainbow in the sky:
So was it when my life began;
So is it now I am a man;
So be it when I shall grow old,
Or let me die!
The Child is father of the Man;
I could wish my days to be
Bound each to each by natural piety".[10]

Development is the overall growth of the person throughout his life span and involves more of mental aspect than physical aspect. Psychological defense mechanisms developed from childhood are to a large extent stable across the life span. However, with advancing age, there is lessening of maladaptive defense mechanisms. Physiological and belongingness needs increase as one becomes old. As for work is concerned, their higher affective commitment and intrinsic motivation compensate for age-related decline. This should help them to adjust to fast changing world. They have no option. While nostalgia may satisfy their psyche to some extent, they need to review their unique life experiences and integrate disparate events into general themes. This will help them to come to terms with the present reality which was neither expected nor actively solicited. For the society, old age has become a problem for policy and social work as the institution of family is breaking up. New institutions of support outside the family are coming up and the community of older persons has to adapt to these changes quickly and adequately to lead the rest of their lives purposefully. Hopefully, wisdom comes with age and with it the traits like tolerance, perseverance, self acceptance, better understanding and the ability to focus on what they have than what they do not have will get reinforced so that they can negotiate the final stage of their lives successfully. Higher level of satisfaction during earlier stages of their lives makes them feel younger and protects them from 'despair'.

Some aspects of gero-transcendence have been listed by Tornstam as shift from materialistic to more metaphysical view of reality, increased identification with prior generations, regard for the institutions and customs essential to any civil society, increased sense of responsibility to future generations and diminished fear of death.[11]

Such a way of growing up gave great respect to elderly that the following observations were made at different times- an Assembly is not worth it if no elder person is present; he is not to be recognized as an elder if he does not speak dharma; the dharma that he would advocate would be unalloyed truth.

Na saa sabhaa yatra na santi vruddhaah.
vruddhaa na te ye na vadanti dharmam|
dharmo na vai yatra ca naasti satyam.
satyam na tad yacchalanaanuviddham.||[12]

Such is the value of old age that Socrates was very eager to speak to the aged, because all have to travel down the path of old age, and he wanted to know "what kind of road it is, rough and difficult, or easy and passable". Plato holds character is more important though wealth is a palliative in old age. He further holds that a complete life must be lived justly in order to reap the easy conscience of old age, and that character, informed by the requirements of justice may allow a soul to pass into the blessed after-world.[13] To quote Richard Steele, "We who are in the last Stage of Life, and are apt to indulge ourselves in Talk, ought to consider, if what we speak be worth being heard, and endeavour to make our Discourse like that of Nestor, which Homer compares to the Flowing of Honey for its Sweetness". The only Way of avoiding (such) a trifling and frivolous old Age, is, to lay up in our way to it such Stores of Knowledge and Observation as may make us useful and agreeable in our declining Years. The Mind of Man in a long Life will become a Magazine of Wisdom or Folly, and will consequently discharge itself in something impertinent or improving. For which Reason, as there is nothing more ridiculous than an old trifling Story-Teller, so there is nothing more venerable than one who has turned his Experience to the Entertainment and Advantage of Mankind".[14]

My dear friends, t**o grow up old** requires a lot of considered and continual preparation from quite a young stage and concerted effort in acquiring knowledge and perseverance in its application which culminates in bestowing wisdom to that individual and through that person to the society at large. The developmental task of *'generativity'* or passing on the desirable values and knowledge and wisdom to the next generation has to be practiced in abundance without let up. In my view, Geriatrics Society of India is engaged in the noble task of involving the members for sharing their thoughts by holding Conferences like the present one and other related activities.

Dr Mahler, Former Director General of World Health Organization has been lamenting that "just when the most

industrialized countries are rediscovering the human worth of the aged and trying to allow them to live within the community and outside of institution, whenever possible, it would be tragically ironic if developing nations were to discard their own traditions which accord a place of honour to the aged". Astana Declaration of 2018 made on the occasion of 40th anniversary of Alma Ata declaration during this week has reaffirmed commitment to primary health care that includes care of the elderly and reiterates the importance of adding life to years.[16]

I hope the onerous task of preparing for Ageing India will be shared by all by creating general awareness in the society apart from programmes devoted to a specific cause or the other.

In conclusion, the choice is open to everybody to just become old or grow up old and wise.

'Jyog jiva jarama simahi '– May we live brilliantly up to our old age.[15]

Dhanyavad, Namaste, my dear friends.
Jai Hind.

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Idiopathic Pulmonary Fibrosis: Current Status

NADOJA DR P S SHANKAR*

Abstract

Idiopathic pulmonary fibrosis (IPF) is a clinical condition characterized by progressive dyspnoea and chronic cough, restrictive lung disease and the histologic pattern of UIP. IPF characterized by fibroblast proliferation and accumulation of connective tissue replacing normal functioning parenchyma. Pleura is not affected. The tidal volume is low. The minute ventilation is great at rest and on exercise. The vital capacity (VC) is reduced. The total lung capacity (TLC) is reduced more than residual volume (RV) resulting in an increase in the ratio of RV to TLC.

Keywords: *Idiopathic pulmonary fibrosis, Interstitial lung disease, Fibroblast proliferation, Progressive lung scarring.*

INTRODUCTION

Idiopathic pulmonary fibrosis (IPF) is a relentlessly progressive, life-threatening, interstitial lung disease (ILD) of unknown aetiology characterized pathologically by fibroblast proliferation, extracellular matrix deposition and progressive lung scarring.

The term interstitium is a misnomer as it refers specifically to a potential space between the alveolar epithelial and capillary endothelial basement membranes. The intersititial space contains the elements of connective tissue consisting of collagen and elastic fibres embedded in proteoglycan ground substance. It is predominantly made up of type I and type II collagen. Collagen forms 60-65% of pulmonary interstitium. It also contains fibroblasts, lymphocytes, dendritic cells and mononuclear cells that are undergoing maturation into macrophages. In addition there are non-collagenous proteins, fibronectin and laminin.[1] These spaces are continuous with perivascular and peribronchial interstitial spaces. Though alveolar wall forms the major structure of the pulmonary interstitium, the fibrotic process is not confined to the wall, but brings about extensive alterations in the discrete architecture of the alveolar unit.

DEFINITION

Hamman and Rich identified diffuse idiopathic fibrotic lung disease as diffuse interstitial pulmonary fibrosis in 1944.[2] Scadding referred the condition as diffuse fibrosing alveolitis in 1964, to encompass the features of both interstitial and intra-alveolar changes in the interstitial lung diseases.[3] Since the cause was unknown it was considered cryptogenic.[4] Liebow and Carrington in1969 gave description of five histopathologic subgroups of chronic idiopathic interstitial pneumonias (IIP), based on specific histologic criteria and the above condition was classified as undifferentiated or usual interstitial pneumonia (UIP).[5]

The American Thoracic Society-European Respiratory Society (ATS-ERS) has defined IPF as a clinical condition characterized by progressive dyspnoea and chronic cough, restrictive lung disease and the histologic pattern of UIP.[6]

AETIOLOGY

The disease in IPF is limited to the lung and the insult that produces interstitial lung disease (ILD) is undetermined, hence cryptogenic (cryptogenic fibrosing alveolitis). There is no known aetiologic stimulus that initiates this condition. Many factors are likely to play in a susceptible host and cause damage of the alveolar epithelial cells and trigger the development of the disease. Thus the condition appears to evolve from a cryptic alveolar injury. Epithelial damage induces a fibrotic process. IPF used to be established by excluding other conditions leading to diffuse interstitial pulmonary fibrosis. But now is recognized by 'what it is rather than by what it is not'. The condition may be familial affecting two or more members of the same family. Though there are many initiating factors or causes of IPF, the terminal stages are characterized by fibroblast proliferation and accumulation of connective tissue replacing normal functioning parenchyma.

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PATHOLOGY

Idiopathic pulmonary fibrosis exhibits histologic features of usual interstitial pneumonia (UIP). The disease process is patchy predominantly affecting the basilar and peripheral regions in the subpleural and paraseptal areas. The effect of the injury appears to be felt in the distal portions of the lobules and acini that later extend upwards centripetally into the lung parenchyma.[7] There is a temporal heterogeneity in the lung injury characterized by alternating areas of normal lung parenchyma and interstitial mononuclear infiltrates, septal fibroblastic foci (fibroblasts or fibroblast-like cells clustered together and relatively well-demarcated from surrounding cells) and honeycomb lung. Occurrence of 'honeycomb lung' (small cystic spaces lined by metaplastic bronchial epithelium) is the end-stage of the damage and scarring. These changes imply that the interstitial injuries have occurred at different period of time and are at different stages of healing. Pleura is not affected.

The histological changes are akin to that seen in collagen vascular diseases, drug-induced interstitial diseases, chronic hypersensitivity pneumonitis or asbestosis.

PATHOGENESIS

It was believed for many years that a generalized inflammation played a dominant role in the initiation of widespread parenchymal pulmonary fibrosis following a lung injury. This was based on observation that bronchoalveolar lavage (BAL) fluid from patients with IPF demonstrated an increased number of inflammatory cells, such as neutrophils and eosinophils. As the inflammatory response led to progressive fibrosis, the treatment was directed to control the inflammatory process with the hope that fibrosis could be limited and/ or prevented. UIP is a distinct pathophysiologic entity characterized by minimal inflammation and chronic fibroproliferation caused by abnormal parenchymal healing.[8]

There appears to be 2 different pathologic routes for development of pulmonary fibrosis. An inflammatory pathway explains the pathology of most interstitial lung diseases which do not include IPF.[8] Initially there is an inflammatory response in disease of known (hypersensitivity pneumonitis, drug-induced fibrosis: or unknown (sarcoidosis, desquamative interstitial pneumonia) aetiology, to be followed by fibrosis. An epithelial pathway is followed in the development of IPF. The condition is associated with scanty inflammation initially. It demonstrates fibrosis and scarring, and alternate zones of normal lung. Though there is inflammatory response, it does not appear to precede or play a dominant role in the pathogenesis. Pulmonary fibrosis results from epithelial injury in the absence of preceding inflammation.[9]

CLINICAL FEATURES

History: A detailed history of occupational exposure in inorganic dusts (silica, asbestos, coal dust) of inhalation and subsequent sensitization to organic dusts containing spores from thermophilic fungi (Farmer's lung), bacterial enzymes, thermotolerant bacteria, avail proteins and animal dander to gases (high concentration of oxygen, chlorine and oxides of nitrogen) and fumes (oxides of cadmium, zinc, copper, nickel and brass) in the work place and in the home has to be reviewed. Often there is a long latent period between an occupational exposure and the onset of clinical manifestations.

A history of medication especially immuno-suppressive and cytotoxic agents, ionizing radiation and of collagen vascular diseases must be taken. In IPF no inhalant aetiology can be found by careful and detailed environmental and occupational history.

Clinical presentation: The clinical presentation of interstitial pulmonary fibrosis has an insidious onset. It is noted in the fourth and fifth decades of life, men and women are equally affected. The manifestations are limited to the lungs. Initially dyspnoea is noted only on exertion. It takes a long time to make the individual severely disabled. At that stage the breathlessness is severe leading to profound disturbances in the pulmonary function. There is tachypnoea. The increased resistance to the distension of the lung leads to an increased respiratory effort. The lowered arterial oxygen tension accelerates the ventilatory drive. There are easily fatigued and there is loss of weight. There may be a dry irritating, non-productive cough. The patient is able to speak only in phrases of a few words, and exhibits an anxious appearance. Digital clubbing is often noted in patients with IPF. Clinically the expansion of the chest is restricted. There may be an impaired percussion note over the bases. On auscultation, there are bibasilar crackles. The crackles are numerous, and harsh (Velcro), and occur in increasing number towards the end of inspiration without any change in the breath sounds.[10] They persist after cough. They are characteristically audible over the lobes posteriorly. They may disappear on lying over the face or on bending forwards. They appear to be due to the decreased lung volume and closure of small airways on expiration, which on reopening during inspiration induce pressure changes within the airways. Such crackles are never heard in obstructive or granulomatous (sarcoidosis, extrinsic allergic alveolitis, silicosis) lung diseases. The onset of pulmonary artery

hypertension and cor pulmonale is associated with a loud, pulmonary component of second heart sound, right-sided parasternal lift and S3 gallop, peripheral oedema and cyanosis.

Clinical course: The progression of IPF may take different clinical forms: slow physiologic deterioration with worsening severity of dyspnoea, rapid deterioration and progression to death or periods of relative stability interposed with periods of acute respiratory decline.[11]

Subclinical IPF: Generally the symptoms precede diagnosis by 1-2 years and radiographic evidence of disease may even precede symptoms. This suggests 'preclinical' periods of disease.[12] The family members of patients with IPF may exhibit familial pulmonary fibrosis, especially in those with a history of smoking. These individuals even though are asymptomatic exhibit early lung fibrosis in lung biopsy samples.[13] The condition is established by HRCT scanning.

Slowly progressive IPF: The classic presentation of IPF is in the form of slowly progressive decline in lung function and worsening dyspnoea.

Rapidly progressive IPF: There is subgroup among patients with IPF who exhibit a rapidly progressive disease. There is history of heavy cigarette smoking.[14] They exhibit a shortened survival.

Acute exacerbations of IPF: Patients with IPF exhibit acute exacerbations with acute respiratory decline. It may arise from complications such as infection or from an unknown cause. There is rapid deterioration in the course of days to weeks, in the symptoms. There is deterioration of lung functions. There is presence of bilateral ground-glass opacities and consolidation superimposed on a reticular pattern on HRCT. The condition has a very poor outcome.[11]

INVESTIGATIONS

Imaging study: Chest radiograph: The chest radiograph shows diminished lung volumes. There are symmetric, bibasilar and peripheral reticulations.[15] A patchy pattern of honeycomb changes that is more prominent in the bases of the lungs, traction bronchiectasis and the absence of prominent ground glass opacity are noted[16] (Figure 1). Pleural involvement is unusual and the costophrenic angles are spared. Patchy consolidation may superimpose when the condition gets deteriorated.[17] Computerized tomography reveals (CT) reveals pulmonary fibrosis with little active inflammation. The periphery and bases are predominantly involved exhibiting honeycomb cysts, distorted interlobar reticulations and traction bronchiectasis.[18]

High resolution CT (HRCT) scanning: The interstitial fibre network of the lung is thickened by fibrous tissue and it

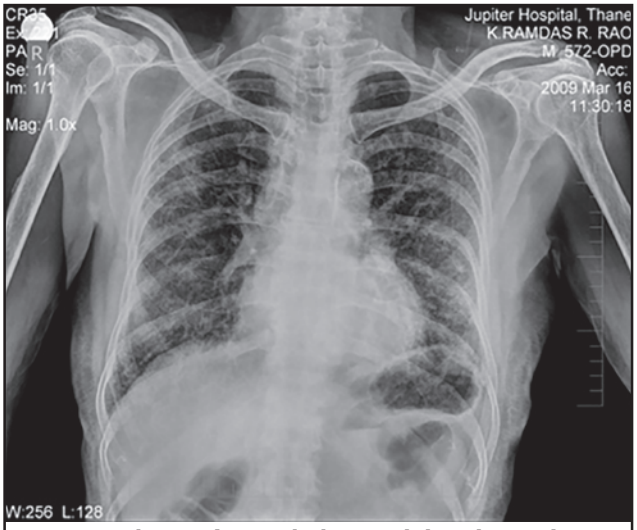

Figure 1: Chest radiograph showing bibasal reticulations, honeycomb changes and traction bronchiectasis.

gives rise to an increase in the reticular lung opacities on HRCT. Interlobular septa of 0.1 mm thickness are better developed in the periphery of the lung and are better visualized by HRCT. IPF has peripheral, subpleural, basal predominance with reticular opacities and traction bronchietasis/bronchiolectasis. IPF is more likely to show honeycombing, traction bronchiectasis and bronchiolectasis and lower lobe volume loss (Figure 2). HRCT is useful as an integral part of the evaluation of patients with suspected IPF.[19]

Physiologic testing: The physiologic alterations in interstitial pulmonary fibrosis are restrictive. The lungs become small, stiff and noncompliant. The tidal volume is low. The minute ventilation is great at rest and on exercise. The vital capacity (VC) is reduced. The total lung capacity (TLC) is reduced more than residual volume (RV) resulting in an increase in the ratio of RV to TLC. There is no airflow obstruction unless there is history of cigarette smoking. The ratio of the forced expiratory volume in one second (FEV1) to forced vital capacity (FVC) usually remains normal. There is reduction in carbon monoxide diffusing capacity due to destruction of the effective gas exchanging areas.

Patients with exertional breathlessness demonstrate exercise-induced hypoxaemia and widened alveolar-arterial pressure difference for oxygen (A-a) O_2. Hypoxaemia is an early manifestation of the disease. There is respiratory alkalosis. With advanced disease there is resting arterial hypoxaemia. Carbon dioxide retention is noted only in terminal stages of disease. The blood gas abnormalities are essentially due to ventilation-perfusion inequality following disruption

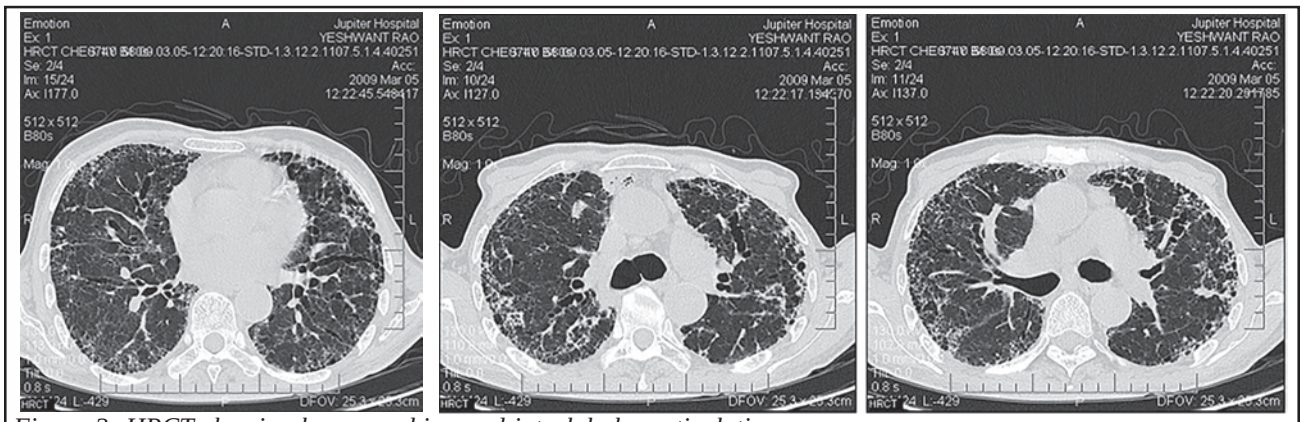

Figure 2: HRCT showing honeycombing and intralobular reticulation

of gas-exchanging units.[19] A diffusion defect may develop during exercise. The pulmonary function abnormalities do not correlate well with the degree of fibrosis. Diffusion capacity of carbon monoxide is highly correlated with HRCT findings.[20]

Pulmonary function tests have a limited role in predicting prognosis and responsiveness to treatment. However, serial measurements are necessary in an individual patient to determine disease progression or response to treatment.[21]

Bronchoalveolar lavage: the analysis of the cellular constituents of bronchoalveolar lavage fluid obtained through the wedged flexible fiberoptic bronchoscope reveals an increased number of inflammatory cells predominantly neutrophils and/ or eosinophils in IPF.[22]

Lung biopsy: The pathologic diagnosis is established by an open lung biopsy through limited thoracotomy with subperiosteal rib resection. Since the pathologic changes are patchy, an open lung biopsy has to be carried out through a small incision at the edge of grossly abnormal areas of the lung, which should include more than one lobe of the lung. Biopsy must be deep, extending well into the subpleural lung parenchyma.[23] Video-assisted thoracoscopic surgery is utilized in the recent years for surgical lung biopsy. There is correlation between the pathologic fibrosis and HRCT fibrosis; hence HRCT is used in the assessment of patients with IPF. However HRCT has not replaced the need for histologic confirmation in most patients.[23]

DIAGNOSIS

Interstitial lung disease leading to pulmonary fibrosis may be classified into two groups: those secondary to some aetiologic conditions (asbestosis, silicosis, hypersensitivity pneumonitis, drug-induced lung diseases, infection) and those of unknown cause (sarcoidosis, fibrosing alveolitis). When no aetiology is found, the condition becomes cryptogenic or of undetermined cause or idiopathic.

The ATS/ERS consensus statement has included major and minor criteria for the clinical diagnosis of IPF.[6]

Major criteria

- Exclusion of other known causes of ILD such as certain drug toxicities, environmental exposure, and connective tissue diseases
- Abnormal pulmonary function studies that include evidence of restriction (reduced VC, often with an increased FEV1/FVC ratio) and impaired gas exchange (increased P(A-a)O2, decreased PaO2 with rest or exercise or decreased DLCO).
- Bibasilar abnormalities with minimal ground glass opacities on HRCT scan
- Transbronchial lung biopsy or BAL showing no features to support an alternative diagnosis

Minor criteria

- age > 50 years
- insidious onset of otherwise unexplained dyspnoea on exertion
- duration of illness >3 months
- bibasilar inspiratory crackles

In the immuno-competent adult the presence of all of the major diagnostic criteria as well as at least three of the four minor criteria increases the likelihood of a correct clinical diagnosis of IPF.

PROGNOSIS

IPF pursues a variable clinical course. Though majority of patients with mild-to-moderate IPF may remain stable for prolonged period of time, some may exhibit a rapid decline in

their clinical course.[24] These patient demonstrate features of diffuse alveolar damage on the background of UIP.[25] IPF is a relentlessly progressive condition and the median survival of patients with the disease is about three years after diagnosis or five years after the onset of symptoms.[27] Spontaneous remission does not occur and treatment is not effective inmost cases. However there is variability of the natural history of the disease and some individuals survive for many years. The clinical course varies from slow progression to acute decompensation and death.

The factors causing rapid progression and shortened survival are: age older than 50 years, male sex, tobacco smoking, severe dyspnoea, and poor pulmonary function abnormalities at the time of presentation, hypoxaemia at rest and with exertion, extensive radiologic abnormalities, honeycomb changes on HRCT scan, increased number of neutrophils or eosinophils in BAL fluid, extensive fibrosis on histologic study, decreased surfactant protein (SP)-A content and SP-A/ phospholipids ratio, and absence of response to therapy. Periodic HRCT scanning of the chest helps to determine the severity of ground glass infiltrates and fibrosis.

The total amount of fibrosis determined by HRCT is an important prognostic factor. The biopsy gives a small specimen and it many not convey accurate information about the total amount of fibrosis. In order to quantitatively assess the morphologic features on CT of the entire lung, CT morphometry (CTM) technique is under evaluation.[26] CTM is done be segmenting the lung parenchyma from the chest wall and central vessels for each slice. The volume of the slice is determined by totaling the volume of three dimensional pixels (voxels) in the slice. The density of the lung tissue in the voxel is estimated by addition of 1024 to the Hounsefield units of each voxel and then dividing the sum by 1024. Lung weight equals the product of mean lung density, which is determined from the densities of all voxels.[27] The lung volume is the sum of all voxels and is expressed as ml gas per gram of lung tissue.

The patients die from progression of pulmonary fibrosis.[28] There is an acute or subacute deterioration of the condition leading to death. Other respiratory causes of death are acute exacerbations, acute lung injury, pneumonia, cor pulmonale, bronchogenic carcinoma and pulmonary embolism. Nonrespiratory causes of death include ischaemic heart disease, heart failure, sepsis, stroke and gastrointestinal disorders.

Shortened survival of patients with IPF is defined on the basis of the following clinical, radiographic, physiologic, pathologic and biomarker predictors

Clinical: older age, smoking, severe dyspnoea, digital clubbing, decreased BMI, pulmonary hypertension, and comorbidities such as emphysema, gastroesophageal reflux disease, ischaemic heart disease

Radiographic: extensive fibrosis quantified by extent of ground-glass opacities, reticulation, consolidation and honeycombing on HRCT, Predominant basilar and subpleural honeycombing

Physiologic: decline in FVC, fall in diffusing capacity, decrease in 6 minute walk test

Pathologic: histopathologic pattern of UIP characterized by dense fibrosis and honeycombing, fibroblastic foci

Biochemical: high levels of a high-molecular weight mucin-like glycoprotein, increased levels of surfactant proteins A and D in blood and BAL fluid, elevated levels of matrix metalloproteinases in blood and BAL fluid, elevated levels of a CC chemokine (CCL-2, -17 and -22) in BAL fluid, and raised levels of neutrophils in BAL fluid.

COMPLICATIONS

The complications are right heart failure, pulmonary infections and carcinoma of the lung. The lung that has become rigid from scarring and has undergone honeycomb changes offers an important background for atypical epithelial cell proliferation leading to malignancy. Nearly 10 per cent of elderly male smokers with IPF may develop lung cancer with histologic type of squamous cell carcinoma. It may present as a peripheral pulmonary nodule or mass. Repeated examination of sputum for malignant cells and demonstration of fresh radiologic shadows in the background of the fibrotic pattern helps in the diagnosis of the condition.[29]

MANAGEMENT

A composite clinical, roentgenographic and physiologic (CRP) score developed by Watters *et al* helps in determining the severity of the underlying radiologic process, rate of progression of the disease and therapeutic benefit.[30] The score is based on relative points given to eight variables such as age, smoking status, clubbing, dyspnoea, profusion of parenchymal interstitial infiltrates and presence of honeycombing, fibrosis and pulmonary hypertension on chest radiography, changes in physiologic parameters such as FVC, FEV1, diffusion, resting alveolar-arterial oxygen gradient, and oxygen desaturation with exercise. The scoring system helps in predicting the survival of the patient with IPF. However it is not widely adopted in clinical practice.[11]

Since HRCT scans were not available earlier, the surgical biopsies were utilized in the scoring system. It included four

features such as fibrosis, interstitial cellularity, alveolar space cellularity and granulation, and young connective tissue.

CRP scoring system was revised as abbreviated CRP score in 2001 which does not include estimation of oxygen tension at maximal exercise as it was not possible to perform such a test on subjects with advanced disease.[31] This modification possesses relatively high predictive value on survival of patients. Inclusion of HRCT into the scoring system has added to its utility. Since survival is related to HRCT fibrosis score, the total amount of fibrosis plays a major role in determining the prognosis.

Wells and coworkers have developed a composite physiologic index (CPI) based on physiologic results obtained from pulmonary function tests (FVC, FEV1 and diffusing capacity). It takes into consideration of coexisting emphysema. The index is promising as it can stage the severity of disease and predict outcome.[32]

Corticosteroids: Corticosteroids are the main form of therapy in the management of interstitial pulmonary fibrosis.[33] They are used based on the concept that suppression of inflammation prevents progression of fibrosis. It helps in suppression of cough. The response to corticosteroids alone is unpredictable and rarely it is effective. Prednisolone is to be administered in a dosage of 1 mg/kg body weight daily as a single oral dose in the morning for the first 3 months followed by a tapering dose of 0.5 mg/kg body weight for up to 18 months. The response has to be assessed by clinical, physiologic and radiographic examination. If the assessment shows improvement, corticosteroid therapy may be tapered to a maintenance level of 10 to 20 mg per day. Corticosteroids are discontinued if there is no response.

Immunosuppressive therapy: Non-steroidal immunosuppressive agents should be considered in those who fail to show response or do not tolerate corticosteroids therapy. Cyclophosphamide or azathioprine, 1-2 mg/kg body weight per day given orally as a single daily dose alone or in combination with prednisolone 0.25 mg/kg body weight orally per day may be administered for 3 months. Cyclophosphamide therapy often has to be discontinued because of neutropaenia, thrombocytopaenia or haemorrhagic cystitis. Azathioprine therapy is associated with leukopaenia, anaemia, thrombocytopaenia, nausea and vomiting. Immunosuppressive therapy is continued if there is an objective improvement. There is no good evidence to support the routine use of any specific therapy in the management of IPF.

Advanced disease: Supplemental oxygen therapy helps in improving exercise tolerance in advanced disease. Young patients without other significant diseases with progressive severe disease unresponsive to treatment may be considered for unilateral lung transplantation.[33]

New therapy: The new insights into pathogenesis of the condition have given new therapeutic approach. Molecules/ drugs inhibiting fibroblast proliferation or inducing fibroblast apoptosis.

1. interferon gamma
2. pirfenidone

Inteferon-gamma

Regulates macrophage function, inhibits fibrogenesis; Combination of interferon gamma 1b with oral glucocorticosteroids leads to stabilization of disease. It has not been proved effective in patients with severely impaired lung function and reduced diffusion capacity.[34] A subgroup analysis has suggested its effect on early disease. Improves survival of patients with milder signs.

Pirfenidone

Inhibits transforming growth factor-beta stimulated collagen synthesis, decreases extracellular matrix, and blocks mitogenic effect of profibrotic cytokines.Well tolerated, Slows progression of disease, allows tapering of glucocorticoid and immunosuppressive therapy, effective in stabilizing lung function and reducing the number patients who experience acute exacerbation of disease.[35] May slow progression of lung impairment in patients with pulmonary fibrosis. Strategies designed to enhance PTEN expression or activity within cells can inhibit further fibroblast proliferation and collagen secretion. Prostaglandin E2 inhibits fibroblast migration by augmenting PTEN activity.[36]

CONCLUSION

IPF is a disease of ageing. Injury to the alveolar-capillary wall leads to loss of integrity of basement membrane. There is failure of re-epithelialization and re-endothelialization, loss of alveoli and fibrosis. There is improper repair and fibrosis. IPF develops in the absence of preceding inflammation. TGF-beta plays an important role in dys-regulated repair and fibrosis. The search for new therapeutic strategies is concerned on the aberrant pathways leading to fibrosis.anti-inflammatory, anti-fibrotic and anti-immunosuppressive therapy neither have improved the survival, nor the quality of life.

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Thrombolysis in Elderly Patients

DINESH CHUADHARI*, P N RENJEN**

Abstract

Stroke is a devastating event in the over 80s. A third of patients die within 3 months and two-thirds of the survivors are left with severe disability. Alteplase administered within 3 hours of symptom onset increases the absolute likelihood of a good outcome by 10%, with mortality unchanged. Age is an independent predictor of outcome after ischemic stroke.

Keywords: *Stroke, Thrombolysis, Intravenous alteplase, Acute ischemic stroke.*

Stroke is a devastating event in the over 80s. A third of patients die within 3 months and two-thirds of the survivors are left with severe disability. Patients with less severe strokes and minimal pre-stroke disability fare better but overall the outcome is bleak. An intervention that reduces the likelihood of severe disability is needed. Meta-analysis of the thrombolytic acute stroke trials demonstrates that alteplase administered within 3 hours of symptom onset increases the absolute likelihood of a good outcome by 10%, with mortality unchanged.[1] The main reasons for withholding treatment from very elderly patients in clinical practice are fears that advancing age is associated with poorer prognosis with greater risk for haemorrhage and in hospital mortality.[2-4] Conversely, a meta-analysis of pooled thrombolysis data concluded that the risks of symptomatic intracerebral haemorrhage did not increase among elderly patients, despite less favourable outcomes.[5] Less favourable outcomes are expected to occur in elderly patients, mostly because of comorbidity.[4,6]

Stroke care infrastructures are different in different countries, which also affects the rate of thrombolysis in elderly population. In the Hesse region of Germany, despite high treatment rates in younger patients, the percentage actually receiving treatment falls steeply with age.[7] The same was true in a very large multicentre audit of hospitals in the US.[8] For patients aged 80–89 years the odds of treatment with tissue plasminogen activator (tPA) were reduced by 60% and for patients aged over 90 years the odds of treatment were reduced by 80%.[8] However, the rt-PA treatment included in the review by Engelter is clearly being used in the absence of EU approval in at least some patients over 80, despite the lack of reliable evidence.[9] Whatever else, if you are a patient with acute ischaemic stroke aged over 80, your chance of receiving thrombolysis will depend very much on which country you are in and which hospital you are treated at. This is unacceptable.[10]

Age is an independent predictor of outcome after ischemic stroke. Older patients, especially those over 80 years old, are more likely to die in the hospital after stroke and less likely to make a favourable long-term recovery.[1] The fact that elderly patients are at high risk for stroke-related death and disability makes them an important target group for acute treatment. However, the elderly may also be at increased risk for haemorrhagic complications from t-PA. Older patients have a higher risk of intracranial haemorrhage after thrombolysis for myocardial. Infarction[11] and patients over the ages of 80 or 85 were excluded from many clinical trials of thrombolysis for acute ischemic stroke (although not the National Institute of Neurologic Disorders and Stroke t-PA study).[12] Perhaps because of this concern and relative lack of information, the European Medicines Evaluation Agency provisional license for alteplase (recombinant t-PA) indicates that it is not recommended for treatment of acute ischemic stroke in patients over the age of 80.[13]

Elderly patients should be treated in a stroke unit instead of a general ward, and early rehabilitation is warranted for these patients. Aspirin should be administered to elderly stroke victims within 48 hours of symptom onset to reduce recurrence and mortality. Age alone should not be considered a contraindication for administering intravenous alteplase. Instead, the benefits and risks should be weighed to

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determine the best course of treatment for the individual patient. In addition, coordinated clinical procedures will help ensure the care of elderly stroke patients.[14] Because the threshold of 80 years is arbitrary for thrombolysis, physicians should weigh the risks and benefits of intravenous alteplase to treat acute ischemic stroke in elderly patients on an individual basis.

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News from Delhi

01st October 2018 - International Day of Older Persons Celebrations At Indraprastha Apollo Hospitals

Indraprastha Apollo Hospital at New Delhi & Geriatric Society of India® organized a program on "Healthy Ageing" followed by Felicitations of Senior Citizens & medical men involved in Geriatric Care between 12:30 Noon to 02:30 PM at Board Room in its prestigious hospital.

Dr. O. P. Sharma spoke on political commitments of various nations in Vienna Convention & Madrid Convention. He also spoke of programs that followed the year 1999 (International Year of Older Person). He mentioned about his text book on Principles & Practice of Geriatric Medicine as well as his Indian Guidelines on Vaccination in Older Persons.

The participants were addressed via video conference by

Chairman Dr. Pratap C. Reddy & Dr. Preetha Reddy, who spoke to participants & gave their blessings. Chairman Sir advised to explore what more can be done for senior citizens & assured his support for the same.

The Chief Guest of the function was Ms. Sharon Lowen, who

is a Fulbright and American Institute of Indian Studies Smithsonian scholar with an M.A. in Dance from the University of Michigan, a great Odissi, Manipuri, Mayurbhanj Chhau & Seraikella Chhau dances exponent. She spoke on positive thinking.

The following Senior Citizens were Felicitated: -

Mr. Ajay Agarwal IPS - Former DG Delhi Police, Mr. R. K. Jain -Mahaveer International, Mr. V. S. Jain - Former Chairman – SAIL, Mr. N. K. Mathur - Former Chairman – STC, Mr. Suresh Mathur - Former Chairman – Petronet, Dr. S. Y.



Quraishi - Former Chief Election Commission, Mr. Raj Bhargava - Former Home Secretary, Mr. Brij Mohan Bansal - Former Chairman – IOCL & Ms. Sheela Jhunjhunwala Padmashree - Former Editor – Kadambini.

The following Doctors were also felicitated on this occasion:-

Dr. B. M. L. Kapur, Dr. Raju Vaishya, Dr. S. K. Wangnoo, Dr. Rajesh Taneja, Dr. Sanjiv Jasuja, Dr. Asim Siddiqui, Dr. Deepak Govil, Dr. Vinit Suri, Dr Anoop Arora, Dr. Hansraj, Dr. Sudhir Tyagi, Dr. Yash Gulati, Dr. P. N. Renjen, Dr. J. M. Dua, Dr. Rakesh Kumar, Dr. N. N. Khanna, Dr. Ajit Saxena, Dr. Vikas Sangwan, Dr. Aditya Bhati, Dr. Sudha Kansal, Dr. S. K. Aggarwal, Dr. J. K. Sharma, Dr. Anil Manchanda, Dr. Puneet Khanna, Dr. Amit Gupta, Dr. G. S. Grewal & Dr. A. K. Prasad.

From physiotherapy Dr. Seema Grover & Mr. Puneet Dua and Col. Usha Banerjee, Ms. Gracy Philip from Nursing were also felicitated.

The following were felicitated in absensia:-

Dr. Alok Agarwal, Dr. Rakesh Gupta, Dr. Balraj Singh Gill, Mr. Vijay Tokas & Dr. Anita Jatana

There were short lectures on Preventive Aspects by: -

Dr. Raju Vaishya, Dr. N. N. Khanna & Dr. Rajesh Taneja

The participants interacted with each other on Healthy Ageing & enjoyed a hearty lunch.

We do hope to carry on the tradition forward.

News from Vijayapura

Dr. Anand P. Ambali presented a paper on "Facets of Psychological Behaviour in older women". This was at 6th International Psychology Congress held in Christ University, Bangalore. Dr. Joseph George, Principal of United Theological College, Bangalore chaired the session. This talk was also translated in to French language as some of the delegates were from France and Portugal.

World Alzheimer's Day at Vijayapura

The Geriatric Clinic and Dementia Clinic had organized Guest talk to commemorate World Alzheimer's Day 2018 on 29/09/2018. The guest speaker was Dr. S. R. Iyer from Mumbai. The session was chaired by Dr. M. M. Kapse, DHO Vijayapura.Dr. M. S. Mulimani welcomed the gathering, Dr A P Ambali gave an ode to the programme. All the dignitaries and two of the senior citizen participants inaugurated the program by lighting the lamp.

Dr. Iyer discussed in detail how sleep affects the elderly people. The symptoms of which are commonly missed in clinical practice and its ill effects on functioning of the brain. Sleep disorders lead to metabolic complications and dementia in elderly population. He also emphasized role of CPAP in management of Sleep disorders, its role in reversing complications of diabetes and prevention of Dementia.

Dr.Kapse in his chairman remarks emphasized need to keep a watch on our children who are now using mobile phone and getting disturbed sleep. He was of opinion that physician should not ignore symptoms suggestive of sleep disturbances.

Dr. A. P. Ambali in his ode to the program highlighted the commitment of the geriatric clinic in creating awareness about dementia in medical fraternity and general public. Dr. S. M. Biradar from pharmacy college introduced the guest and Dr Ambali introduced Dr. Kapse.

Dr. C. M. Kulkarni presented memento to Dr.S. R. Iyer and Dr. N. B. Desai to Dr.Kapse.Ms. poorima invoked the blessings and Mr. Jigyasu mastered the ceremony. Dr. Pranav PG student, conveyed vote of thanks. SARS has sponsored the high tea. A total of 68 delegates participated in the program. The program lasted for two hours.

News from West Bengal

CONGRATULATIONS!

World Elder's Abuse Awareness Day 2018 was observed by Geriatric Society of India West Bengal branch on 16th June 2018 at Bodyguard line auditorium of Kolkata Police, being organized jointly with "PRONAM" of Kolkata Police in association with BANCHBO Kolkata, dignity Kolkata,

Parkinson's disease patient welfare society, Kolkata & Barrackpore Elderly Care Society. This was attended by about

300 persons. Veteran Cinema star Smt. Sakuntala Barua was the Chief Guest, Guest of honour were – Justice (Retd.) Sri. Arun Mitra, Sri. Sujay Kumar Chanda (IPS), Joint commissioner of Kolkata police, Sri. Satyajit Bandyopadhyay (IPS) OSD, Executive officer, community policing, Kolkata, Smt. Alakananda Roy (Veteran Dancer & social activist).

Geriatric Society of India WB branch Dr. Ashoke Das, Dr. Chinmay Kumar Maity, Dr. Kaushik Ranjan Das, Dr. Krishnanjan Chakraborty, Dr. Mainak Gupta, Dr. Dhires Kumar Chowdhury & Dr. Soumik Ghosh were present. The media partner was EAI SAMAY, a Bengali daily.

GSI West Bengal branch members delivered talks on different aspects of elder's abuse including ways to combat the issue.
Website of GSI WB branch has been inaugurated by Dr. Chinmay Kumar Maity. GSI WB branch has declared a programme for sensitizing youngsters in the name "JAGARAN". Finally, a resolution has been adopted for sending to different persons for necessary action.

CME

Geriatric Society of India West Bengal branch organized a CME programme on 25th August 2018 at Hotel Sojourn. The topics were Urinary Incontinence in elderly in which the speakers were Dr. Arindam Dutta & Dr. Rahul Bhattacharya and Chair persons were Dr. Ratnabali Chakraborty & Dr. Chinmay Kumar Maity.

World Elder's Day Celebration

Geriatric Society of India West Bengal Branch & Barrackpore Elderly Care Society celebrated World Elder's Day on 01st October 2018 at Barrackpore, West Bengal.
Elder's Fair, Indoor Game Competition & Cultural Session were part of the event in which about 400 people participated.
Memory screening by ARDSI Kolkata chapter, Audiometry & display of hearing aid by Su-Shruta, Barrackpore, Physiotherapy & assisting devices by Ashotosh Chakraborty, Insurance & Mediclaim information by New India Assurance Co were also organized.
Lupin Diabetic care organized blood test, CIPLA organized Spirometry & Apollo Clinic organized BMD, Rajat Chatterjee organized ECG, Blood sugar testing was organized by H&H Pharma & general health check-up was done.
General Discussion was chaired by Sri Asit Ranjan Banerjee in the meeting in which Chief Guest was Mr. A.K.Azad Islam, SDO, Barrackpore & special guests were Dr. S.K.Gope, , Dr. Manik Pal, Dr. Anadi Nath Biswas, Dr. R.N. Maiti, Dr. Monoranjan Roy, Dr. N. K. Roy, Dr. Sudipta Bhattacharjee, Sri . Dayamay Biswas, Sri. Sunit Gope, Parimal Sarkar, Amal Sarkar, Dr. Ashoke Das, Dr. Chinmay Kumar Maity, Dr. R. N. Maiti, Dr. Gopeswar Mukherjee, Dr. Dhires Kumar Chowdhury, Dr. Krishnanjan Chakraborty, & Dr. Mainak Gupta.

Resolutions were passed to protect the life & property of senior citizens & to create a special fund for them.

News from Aurangabad

Dean Kanan Yelikar (right) and deputy director of health Swapnil Lale inaugurated the memory clinic on Friday

World Alzheimer's Day 2018 was celebrated at Aurangabad & and a memory clinic at Public Health Dept of GMCH was inaugurated.

News from Maharashtra

Congratulations

Dr. Anita Basavaraj for forming GSI Miraj – Sangali Chapter & being elected as Chair Person

GSICON 2018

15th International Conference on Geriatric Care and Gerontology (Annual Conference of Geriatric Society of India), Pune, 26-28 October 2018

GSICON - 2018 (15th International Conference on Geriatric Care and Gerontology / Annual Conference of Geriatric Society of India) was organized by the Pune Chapter of Geriatric Society of India at Pune from 26th- 28th October 2018.

Theme of the Conference was " Getting Old Is Mandatory !!! , Feeling Old Is Optional !!! ", highlighting the need for a positive and optimistic outlook towards old age.

On 26th October, Health Education programme was conducted for Senior Citizens in the form of series of lectures in Marathi on various important issues such as Financial Security, Environmental Modification, Legal issues, Personal Security, Care givers' problems, Happy Ageing etc. More than 300 Senior Citizens attended the programme. Lectures were followed by Entertainment programme. Main Conference was held on 27 th and 28 th October.

Scientific Programme included following 7 Orations -

1. Presidential Oration by Dr. Vivek Handa on " Assistive devices of daily use in the Elderly "
2. Dr. B. N. Srivastava and Saran Dulari Oration by Dr. Deodatta Chafekar on " Drugs and Kidney in Ageing "
3. Shri Sunku Subrahmanyam Memorial Oration by Dr. O. P. Sharma on " Geriatric Care in India - Our Approach "
4. Dr. K. C. Mohanty Oration by Professor P. S. Shankar on "Idiopathic Pulmonary Fibrosis - Current Status"
5. Dr. J. J. Rao Oration by Prof M. S. Sridhar on "Getting Old Is Mandatory, Feeling Old Is Optional !"
6. Dr. Raghunandan Lal Prabhakar Oration by Dr. Satish Tembe on "Untrodden Pathways in Senior Care"
7. Balmacharan - Hemlata Dhar Oration by Dr. Vinod Shah on " Vaccination in Older Adults"

We were honoured to have 3 International Speakers -

1. Professor Tahir Masud, President Elect - British Geriatric Society, on "Osteoporosis Management - A Practical Approach"
2. Dr. B. K. Mondal on "An Update on Management of

Parkinson's Disease and Recent NICE Guidelines"
3. Dr. Rangasamy Muthusamy on " Coronary Heart Disease in Elderly - Current Practice and Developments"
There were 6 symposia during the Conference -

- Pathology Symposium
- Diabetes Symposium
- Neurology Symposium
- Surgical Symposium
- Multi disciplinary approach
- Gender Specific issues

There were also many State of the Art Lectures and Guest Lectures which covered wide range of issues such as Psychology challenges in Older Adults, Infections, Childhood Origin of Adult Diseases, Pre and Pro biotics in Type 2 Diabetes Mellitus, Role of Anabolic steroids, Role of NOACs in Atrial Fibrillation, Dental Issues, Clinical Nutrition, Infections, Thyroid Disease, Brain Death and Organ Donation, BPPV, Ageing with the Microbiota, Sleep Apnea, Role of Care Homes for Elderly, Personal experiences related to Live Liver Transplant etc.
Dr. Jayant Umranikar, retired Commissioner of Police, Pune was Chief Guest for the Innauguration Ceremony.
Appreciation awards were given by GSI HQ to doctors for conducting Academic activities.
Six doctors were awarded Fellowship of Geriatric Society of India during the Convocation Ceremony.
Nearly 300 delegates attended the Conference.

Congratulations

Dr. Sajesh Asokan; Dr.Chinmoy Kumar Maity, Dr. Soumi Chakraborty, Dr. Kausik Majumdar, Dr. Navas Nadukkandiyil, Dr. T. Muneeswar Reddy Dr. O. P. Sharma, Dr. Vivek Handa, Dr. Tahir Masud

News from Karnataka

CONGRATULATIONS!

Dr. Prabha Adhikari receiving the state award for her institution for Geriatric Care & Dr. P. S. Shankar receiving the state award for literature on World Elder's Day.

Dr. Bindu Menon receiving World Stroke Day Award under Individual Achievement category from the World Stroke Organisation President at Montreal October 19th at the World Stroke organisation Annual conference.

Dementia Clinic

Scientific, Academic and Research Society (SARS)

BLDE

(DEEMED TO BE UNIVERSITY)

SHRI. B. M. PATIL MEDICAL COLLEGE, HOSPITAL & RC,

VIJAYAPURA

Department of Medicine, Geriatric & Dementia Clinic.

WORLD ALZHEIMER'S DAY 2018

Topic – "Ageing, Sleep &Dementia- connecting the dots…"
Date -29/09/2018 Total participants -068
Guest Speaker – Dr. S. Ramnathan Iyer, Mumbai

Inauguration by
Dr. S Ramnathan Iyer
Dr. M. M. Kapse, District Health Officer Dr. M. S. Mulimani, HOD of Medicine & Senior Citizens

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