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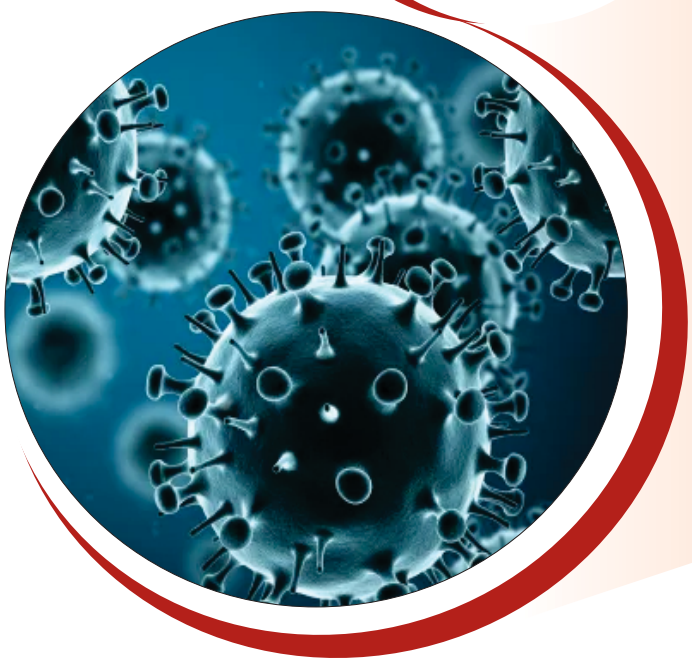

HIGHLIGHTS

Editorial Board

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Enquires concerning subscription, advertisement, etc, should by addressed to Dr.O.P.Sharma, Editor-in- Chief , IJGC, K-49 Green Park Main New Delhi 110016.
Tel: 9810627346. Email : opsharma.gsi@gmail.com

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Editorial

Dr. O.P. Sharma
General Secretary
Geriatric Society of India

Indian Needs in Geriatric Care

The demographic transition in age, across the globe gave rise to a significant size of elderly population. The developing world realized it soon and took necessary steps in socio-economic as well as medical fields. There then emerged the concept of Geriatrics.

The developing world also started bearing the brunt of problems arising-out of ageing population. The lack of financial support as well as inadequate health infrastructure created a mal adjustment between the demand and availability. The scenario in India is an apt example of the same.

We are still developing but already have a significant burden of elderly population, necessitating socio-economic support as well as health infrastructure development.

Unfortunately, so far as health infrastructure is concerned, we still follow the western pattern which is based upon their population, disease pattern, nutrition, environment economy etc.

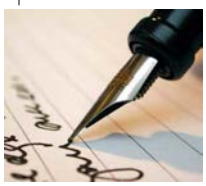
The Geriatrics in west, started in 1930 is yet to take off properly in India even in 2017. Our medical council has recognized it recently and hence our medical graduates, produced in medical colleges in India, have no formal exposure to this speciality. Out of 460 colleges only four colleges have postgraduate degree course available in Geriatrics. We have a mammoth population of 120 million senior citizens in India and the available Geriatricians just cannot match them.

On critical analysis one may notice the inappropriate noise on Geriatric burden. The reason being the three segments of elderly population have different needs. The young elderly (60–70 yrs.), are still gainfully employed, will demand health standards / medical coverage like adults for which the infrastructure, though not so adequate but still exists throughout the country. The middle elderly (71-80 yrs.) will require more of nursing and paramedical staff with very limited medical care from Geriatricians. The load of old elderly will be shared by various other specialists (Cardiologists, Endocrinologists, Urologists etc.) whose fields are involved as per the need during hospital care. The home care in old elderly can be taken care by Geriatricians along with their teammates like nurses, physiotherapists, nutritionists and care givers.

Considering above facts it is suggested that, we chalk out our problems of elderly care and work out the possible need based solutions for them.

For all the three sections i.e., young, mid and old elderly, the provisions for socio-economical requirements have to be done under constitution. They also require health education; especially preventive health inclusive of lifestyle modifications.

The mid-elderly will require more of health caregivers who should be trained to deal with frail, disabled and assistance requiring elderly. The role of Geriatrician is very limited. The special beds, gadgets and provisions for old and disabled elderly have to be worked out as per our Indian conditions.



Editorial

The old elderly are either hospitalized / medically dependant elderly and are mostly being looked after by specialists from other disciplines who have extended their care / treatment to higher age groups, owing to development in their speciality. For example, kidney transplant, heart surgery, joint surgery etc. are done even in very old people.

It is therefore recommended that instead of putting our limited resources on development of the speciality of Geriatrics, the planning may be as given below:

A. The existing 112 million of senior citizens can be taken care by Telemedicine Centres in five locations of our country i.e., east, west, north, south and centre. They can guide family physicians about the medical, nursing, nutritional, physiotherapy need based problems. There may be help centres to guide the practitioners about socioeconomical and cultural problems relevant to them, along with coordination in their referrals to specialized centres. The booklets on geriatric care may be prepared in telegraphic language and in regional languages. There may be CME programmes and news letters to help family physicians on the medical problems of elderly.

B. We have 460 Medical Colleges in our country which annually produce 46,000 doctors. Geriatrics can be a part of M. B; B. S. curriculum at different levels. The medical students may learn anatomical, physiological, pathological changes with ageing. There may be addition of topics like Geriatric Syndromes, Gerio-pharmacy, effects of Andropause / menopause; age related diseases etc. Stress should be on drug side effects and interactions, as poly pharmacy is a routine in elderly.

A good knowledge of regional Indian diets, certain herbs, condiments, Yoga, Spiritually and tips from other systems of medicines may be of great use. The stress should be on preventive strategies which may comprise of lifestyle modifications, proper management of comorbid conditions, organ prevention and vaccination.

Geriatric should be properly exposed to doctors doing MD medicine and in limited centres MD geriatrics may also be introduced.

Cognitive Stimulation and Creativity: Correlates of Successful Ageing

*ASHIMA NEHRA

Abstract:
Age related decline of abilities of memory, attention and executive function have been most widely investigated. Increasing number of studies suggest that the brain is malleable even in later life. Cognitive training exercises comprise of training programmes that provide guided practice on tasks aimed at improving performance on one or more cognitive domains. In conjunction, engaging in mentally stimulating activities and creative pursuits promote successful and healthy ageing in older adults.

Keywords: *Stimulation, creativity, cognitive training*

With increase in age, decline in cognitive ability becomes more and more pronounced. However, a common misconception is that loss of abilities like memory, attention, and other mental facilities that help us to think clearly and maintain social relationships, decline inevitably and become untreatable as we age. However, increasing number of studies suggest that the brain is malleable even in later life.[1]

Age related decline of abilities of memory, attention and executive function have been most widely investigated. These abilities (especially EF) are most directly related to independence of performing activities of daily living. Thus, reiterating the need to maintain proficiency of the same.

Although no one type of cognitive training has been established as the most effective, numerous studies vouch for the efficacy of such exercises/ interventions in maintaining cognitive abilities and delaying impairment. The underlying principle here is that of neuroplasticity, which refers to the change and adaptation of the brain as a result of repetitive activation.[2] Additionally, studies show potential for cognitive plasticity later on in life whereby performance can be enhanced under optimal conditions.[3,4]

Cognitive training exercises comprise of training programmes that provide guided practice on tasks aimed at improving performance on one or more cognitive domains.[5] These may be graded in difficulty to provide for individual variations in ability. Further, they can be addressed to groups or individuals, can vary in frequency and duration of sessions, can differ in approaches and strategies practiced. Additionally, some can differ based on the mode of administration (computerized or paper pencil). The efficacy of these can be determined by improvements of scores in targeted areas, maintenance of improvement over time, transfer of training to other cognitive tasks and generalization of effects to everyday functioning.[5]

The largest trial of cognitive training in cognitively healthy older adults carried out till date, named the Advanced Cognitive Training for Independent and Vital Elderly (ACTIVE) study revealed long term effects of memory and executive function training lasting upto 5 and 10 years. Additionally, 60% of participants reported less difficulty in performing activities of daily living even 10 years hence.[6]

Interestingly, other general stimulating interventions that promote engagement in other mentally stimulating activities, e.g., reading, playing music, playing chess etc have also been associated with decline in cognitive impairment and increased engagement in life.[7]

Thus, multimodal interventions that are more relevant

*Additional Professor, Clinical Neuropsychology, Neurosciences Center, AIIMS, New Delhi

and nuanced in everyday activities should be developed and encouraged. Such activities can also lead to greater transfer in everyday activities and improvement in quality of life. This idea is closely related to the concept of everyday creativity.

Most researchers and theorists agree that creativity involves the development of a novel product, idea, or problem solution that is of value to the individual and/or the larger social group, psychologists have had great difficulty finding consensus to define this concept (Hennesey & Amabile, 2009). However, it is too often that people believe that the term creativity applies only to breakthrough ideas. "Small c" creativity describes the small ideas and "a-ha's" that enhance and enrich our lives — like creating a new recipe, teaching your dog a new trick or coming up with a new way to format a report for your company — but which rarely bring us fame or fortune. In fact, many people don't even consider these accomplishments as a form of creative thinking (Innovation Tools, 2013). This refers to the everyday type of creativity. It is often used as an indicator of mental health, includes everyday problem-solving and the ability to adapt to change.[8]

Besides novel productions, creativity results in other positive outcomes as well. According to Hickson and Housely it offers a route to respond to the limits and uncertainties of our existence.[9] Through the pursuit of such activities, individuals can develop a deep sense of understanding of self.[10] They also believe that it helps enhance a sense of self competence and efficacy in older adults. Thus, it's believed that it's not just the end product, but also the process of getting there that benefits them.[11] Price and Tinker have also validated the ideas that creativity encourages social interaction, provides cognitive stimulation and gives to the older adults, a sense of self worth. Research states that it can be used as "multidisciplinary treatment" for a number of health problems, namely, depression and dementia.[12] Addams-Price has also stated that late life creativity is a manifestation of late life thinking aspects of synthesis, reflection and wisdom.[13] Wisdom is believed to arise from increased life experiences. It also incorporates good judgement, better understanding of life situations as compared to others, the ability to build perspective and take on life as it comes. (how elderly can perform better on creative tasks).[14]

Successful ageing by definition, includes three main components: low probability of disease and disease related disability, high cognitive and physical functioning capacity and active engagement with life. Hence, in conjunction, engaging in mentally stimulating activities and creative pursuits promote successful and healthy ageing in older adults.

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Pott's Spine – A Rarity in Nonagenarian

*SHIKHAR BAJPAI, *P.R. PATGIRI, **T.K. BISWAS, ***ALFVEN VIEIRA

INTRODUCTION

- Pott disease or Pott's disease is a form of tuberculosis that occurs in the vertebrae.
- It constitutes about 50% of all cases of tuberculosis of bones and joints.
- Pott's disease results from haematogenous spread of tuberculosis from other sites, often the lungs.

CASE HISTORY

- A 95yr/M Mr. Mahadev brought by relatives with history of:
  - Low backache since 8 months
  - Claudication of 5 months
  - Paresis of Rt. Lower Limb since 2 months
- K/C/O Pulmonary TB and was on Anti Tubercular Treatment for 8 months

ON EXAMINATION

- On admission Pt. was afebrile having pulse of 92 beats/min, BP of 150/80 mm of Hg, RBS 135 mg/dl
- On systemic examination, chest was clear with bilateral air entry, heart sounds was normal without any murmur, abdomen was soft and non tender.
- On local examination of lower back, range of movement was restricted and painful, deep pulses were present, Step Sign was seen, Crepitation were felt

Reports

Hb	9.6 g/dl
TLC	10,100
Plt	3.44 lac/cumm
Bilirubin T	0.51 mg/dl
Bilirubin Direct	0.08 mg/dl
SGOT	23.7 u/l
SGPT	11.3 u/l
ALP	88 u/l
Total Protein	8.36 g/dl
Albumin	2.70 g/dl
BUN	10.8 mg/dl
Urea	23 mg/dl
Creatinine	0.75 mg/dl
U/A	5 mg/dl
Na	133 mmol/l
K	3.8 mmol/l
Cl	100 mmol/l
HbA1c	6.2%

- **X ray L/S Spine AP & Lat.**
  - Blocked L2-L3 vertebra
  - Osteophytic lipping seen
  - Anterion Wedging at D11 vertebra
- **MRI Dorsal spine with whole spine screening**
  - Bony ankylosis with fusion of D10 & D11
  - 6 x 2.4cm & 4 x 1.7cm para-spinal abscess D10-D11 vertebral body level with epidural extrusion of abscess with cord compression
  - Mild cervical canal stenosis
  - L1-L2 disc : moderate annular bulge with bilateral L1 exiting nerve root compression
  - L4-L5 disc : moderate annular bulge with L4 exiting nerve root compression with post central

Treatment

- Tablet Etodolac+Thiocolchicoside 400/4mg BD
- Tablet Ranitidine 150 mg BD
- Tablet Rifampin 450 mg OD
- Tablet Isoniazid 300 mg OD
- Tablet Ethambutol 800 mg OD
- Tablet Pyrazinamide OD
- Tablet Pyridoxine 20 mg OD
- Patient showed improvement on this treatment and discharged on same medication and is awaited for follow up.

*Consultant Physician & Geriatrician, **HOD Geriatrics, ***HOD Orthopaedics, MGM Medical College, Kamothe, Navi Mumbai

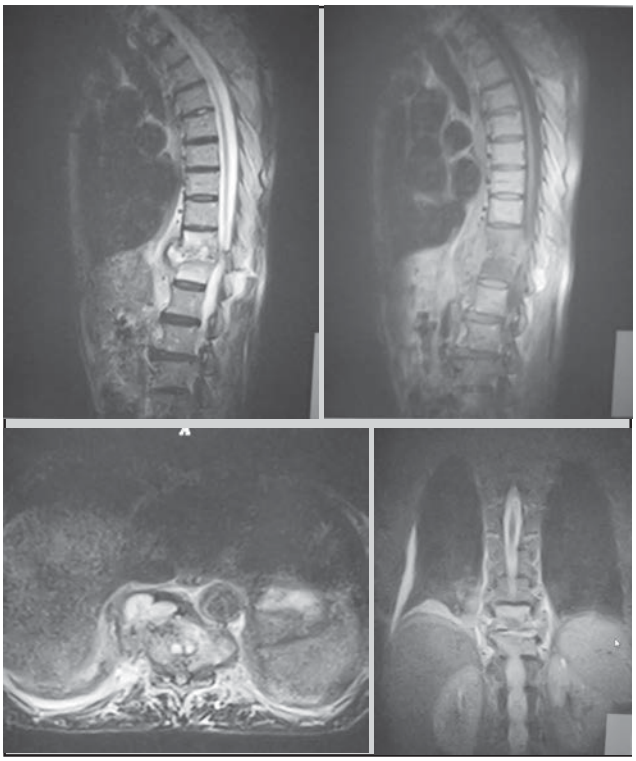
Discussion

- The disease is named after Percivall Pott (1714–1788), a British surgeon.
- The lower thoracic and upper lumbar vertebrae are the areas of the spine most often affected.

- The infection spreads from two adjacent vertebrae into the adjoining intervertebral disc space.
- If only one vertebra is affected, the disc is normal, but if two are involved, the disc, which is avascular, cannot receive nutrients and collapses.
- In a process called caseous necrosis the disc tissue dies leading to vertebral narrowing and eventually to vertebral collapse and spinal damage.
- A dry soft tissue mass often forms and superinfection is rare.
- It is rare in elderly age group as most patients are in age group 41-54 years as shown in various studies.
- There is also not much literature present on treatment of Pott's spine in this elderly age group.
- Therefore, to conclude we need studies that highlight a different treatment route for elderly patients other than surgery and to avoid polypharmacy.

CONCLUSION

- We present this case to highlight its rarity in elderly age group as most cases are seen between 41 to 54 years.
- Also to suggest that the use of Anti Tubercular Treatment



can be more useful in elderly as compared to decompression surgeries and abscess drainage who are unlikely to be suitable candidates for same.

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Age and Ageing and Medications in the Elderly

BIJOY K MONDAL

Abstracts

The goals of healthy ageing are maintaining physical and mental health, avoiding toxic exposure and remaining active and independent. Rational prescribing decisions are often based on good clinical evidence, maximise clinical effectiveness, minimising harm and avoid unnecessary suffering. Elderly patients may have increased or decreased drug responsiveness due to the differences in receptor effects.

Keywords: *Ageing, frailty, polypharmacy*

AGEING PROCESS

Ageing is a gradual continuous process of natural changes that begins in early adulthood. During early middle age, many bodily functions begin to gradually decline. There is no way to escape from the ageing process.

There are a number of theories of ageing, including wear and tear, adaptive evolutionary and non adaptive evolutionary theories, but none are convincing.[1] How our body ages, depends in part, on our family (genetics) patterns of ageing. The ageing process happens during an individual's life span and none of us escape from these changes.

The goals of healthy ageing are maintaining physical and mental health, avoiding toxic exposure and remaining active and independent. What triggers ageing in our tissues and cells, we simply do not know. With age, hair becomes thin and turns grey with loss of eye sight and hearing. Skin is more easily damaged becoming thin and less elastic with a loss of collagen tissues, wound healing is delayed and decreased protection from ultraviolet light.[2]

Gradual loss of function of our bodily organs with loss of taste, smells and decreased saliva, with diminished production of digestive enzymes. There is lack of peristalsis in the large bowel, leading to constipation. Urinary bladder capacity gets smaller, with increased frequency and nocturia, as well as an enlargement of the prostate in men and pelvic floor muscles become weaker in women. Bones become brittle and osteoporotic, and are more susceptible to fractures with loss of height. With the ageing process, the brain size becomes smaller, leading to confusion, forgetfulness and mild cognitive impairment and may develop dementia.

As a result of ageing the kidneys shrink with a loss of nephrons and reduced blood flow, loss of filtration and excretion leading to chronic kidney disease. The blood flow is reduced to the liver leading to altered metabolism and cause sluggish liver function.

With the ageing process, lung function decrease, particularly the vital capacity. Muscle mass and strength declines with ageing, leading to sarcopenia. Lean body mass also changes with the ageing process with subcutaneous fat deposition being altered in the elderly and distribution of body fat and fluid and body composition changes, which increases fat tissue deposition, leading to central obesity.

There are age related neurological changes, with diminished flexors and sensations. There are biological and haematological changes with the ageing process. The ageing process also brings social, emotional and psychological changes.

Frailty can be defined as a clinically recognisable state of increased vulnerability, resulting from ageing associated with the decline in desire and function, which then causes multiple physiological symptoms, such as the ability to cope with every day life. This is not an inevitable consequence of ageing.

The characteristic of disease in old age is multiple illness, acute onset and rapid death, insidious onset and silent existence, impaired homeostatic intolerance, impaired immune function.

The elderly are more prone to confusional state, immobility, incontinence and pressure sores.

*Consultant Physician, Care of the Elderly, Rotherham NHS Foundation Trust, UK

MEDICATION

Prescribing is an art. Distinguishing the sick from the health has always been a fundamental challenge for Medicine. It is very difficult to make a clear distinction between normal physiological ageing and disease.

There is an increasing challenge to Doctors when prescribing particularly for patient with multiple long term conditions. Prescribing is the most important armamentarium used by Clinicians to cure illness, relieve symptoms, and prevent future diseases.

It is also a difficult and complex task that requires an appropriate diagnostic skill, knowledge, understanding of the principles of clinical Pharmacology. Communications skills and ability to make decisions and prudence judgement of benefit and risk balance.

Rational prescribing decisions are often based on good clinical evidence, maximising clinical effectiveness, minimising harm and avoiding unnecessary suffering.

MEDICATION IN THE ELDERLY

Editorial in the BMJ – 06 July 2013 - "Too much medicine, too little care, time to wind back the harms of over diagnosis and over treatment".[2]

Doctors are now so busy managing the proliferation of risk factors "incidentalomas", and the worried well, that they lack the time to care properly for those who are seriously ill.

Professor David Haslam, Chairman of National Institute of Health and Care Excellence (NICE)***, "mentioned patients suffer on a conveyor belt of care. Medics will be told that they should not assume that adding a new drug to patient regime".***[3]

There is a Kings Fund report which states that Polypharmacy is a necessary evil.[4] We, the Doctors, are not very good at stopping medicines. We tend to add drugs rather than substitute. Older people often have several medical problems and take multiple medications. Old age is associated with changes in pharmacokinetics and Pharmacodynamics. Prescribing in this group can be problematic.

Many patients receive drugs to prevent future risks of disease, such as a stroke or Myocardial Infarction, this is part of modern medicine. We have to make sure that these are effective. Problems arise when drugs interact and have adverse effects.

Therefore guidelines should be taken into account including long term conditions with frailty and multiple medical problems. Clinical trials should involve elderly people with multiple co-morbidities, rather than a single disease.

PHARMACOKINETICS AND PHARMACODYNAMICS

Physiological changes occur with ageing, both from Pharmacokinetics and Pharmacodynamics changes, drug exertion and gastric emptying delays, decreased hepatic metabolism as liver is the principle organ of drug metabolism. There is reduced renal clearance, as a result of that there may be an accumulation of drugs which can lead to toxicity and serious side effects. With age the body undergoes several changes that can affect absorption, distribution, metabolism and excretion of the drugs. Particularly water soluble drugs could be reduced due to decreased body water and lipid soluble drugs increased.

Elderly patients may also have increased or decreased drug responsiveness due to the differences in receptor effects.

POLYPHARMACY

The word Polypharmacy is derived from the ancient Greek 10 Polús meaning many, and Pharmakeia meaning the use of drugs.

There is no simple definition of Polypharmacy in light of multi morbidity but as a rule, polypharmacy is if anyone taking more than 5 drugs. Polypharmacy is not always harmful, if appropriately prescribed.

Polypharmacy is common in elderly people. It is associated with increase in adverse outcomes of drug interaction, leading to falls, hospitalisations, increased length of stay and mortality. Good prescribing in the elderly should include a regular medication review, discontinue drugs which are not indicated and prescribe drugs that have got a clear indication. We need to avoid drugs that have known side effects, use the recommended dosage with a simple regimen. We need to consider using non-pharmacological treatments if appropriate and need to limit the number of prescribers which will then avoid adverse drug reactions to maximum possible.

Ideally patients should be fully informed about the goal of treatment before commencing drugs particularly for preventative drugs where there is no prospect of immediate improvement in the quality of life, and any benefits will only be gained by adherence to treatment over many years.[12]

Adverse drug reactions (ADRs) represent a major burden on Health Care. Older patients are particularly vulnerable to adverse drug reactions because age related changes in pharmacokinetics and pharmacodynamics may alter drug metabolism.

Evidence suggests that up to 90% of older people receive one or more inappropriate medications.[8]

Systematic review (2014) identified 46 different tools for answering inappropriate prescribing, the majority (36) on the older population.

An American consensus guideline known as the "Beers Criteria" for inappropriate prescribing in older people indicates: [9]

Inappropriate prescribing criteria by O'Mahony *et al*, which was published in Age and Ageing 2012,[5] is a Screening Tool of Older Person's to potentially help with inappropriate Prescriptions. STOPP 68 drugs were identified and (Screening Tool to Alert Doctors to Right Treatment) START 22 drugs were identified. Beers criteria identified 42 drugs to avoid in the elderly and potentially harmful drug disease interaction.

These criteria were based potentially on inappropriate prescribing, specifically to particular drugs, generally identified through expert consensus. None of these tools are specifically designed for measuring problematic polypharmacy.

Polypharmacy is the core problem of potentially inappropriate prescribing, which is highly prevalent in primary and secondary care. Inappropriate prescribing can be reduced by good prescribing practice, regular medication review, using few prescriber as possible, education and regular audits. Good Communication between Doctor to Doctor or prescriber is essential.

According to Sir William Osler, ***"one of the first duties of a Physician is to educate the masses, not to take medication".***[6]

The ordering of medication in any and every malady (pholyparmacy) is no longer regarded as a the chief function of the Doctor. Older people are often prescribed un-necessary drugs.

A recent study by Onder *et al* indicated that Polypharmacy of more than 8 regular drugs daily is the strongest predictor of adverse drugs reactions in older people.[4] Adverse events related to drugs, are among the top five causes of death in the USA and 17% admissions.

Strategies to reduce the risk of iatrogenic illness is complex and screening to identify at risk of adverse drug reactions. Elderly taking more than 4 drugs are at a higher risk for adverse reactions, which can be reduced. Bates *et al* tried to develop a risk stratification model for patients likely to experience an adverse drug event.[13] A more recent study proposed a risk score named the Geronto NET ADR risk score, as a practical, efficient and simple method of identifying patients who are at increased risk of an adverse drug reaction.

The study showed that a number of drugs and history of a previous adverse drug reaction were the strongest predictors of adverse drug reaction.

The Geronto NET adverse drug reaction risk score has the advantage to represent a practical and simple method.[14]

Computer Based Prescribing Systems

Clinical Decisions Support Systems (CDSS) and Computerised Prescription Support System (CPSS) are interactive softwares designed to correct prescriptions, with the aim of reducing prescription errors.

Very few studies demonstrated an improvement in patient outcome. Clear evidence of computer based prescribing is lacking.

Comprehensive Geriatric Assessment (CGA) with multidisciplinary team approach, as compared with usual care in frail older people shows reduction in the risk of a serious adverse drug reaction and a reduction in unnecessary and inappropriate drug use.

CONCLUSION

Polypharmacy is a growing and global issue, affecting both primary and secondary care. It is primarily driven by ageing. Multi morbidity coupled with the increasing use of guidelines.

We have to balance appropriately against the potential harm and benefits.

Finally

Over diagnosis and overtreatment have serious implications for individuals. Health Care systems and society, and effective strategies are urgently needed to help the public, Clinicians and policy makers in addressing these problems.

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REVIEW ARTICLE

Hyponatremia in the Elderly

*N.S. NEKI

Abstracts

Hyponatremia, serum sodium <135 mMol/L, is the commonest electrolyte imbalance encountered in clinical practice. Hyponatremia is common in the elderly, particularly among those who are hospitalized or living in long-term care facilities. A too-rapid increase in the serum sodium concentration, with the rapid transfer of free water out of the brain cells, can cause diffuse cerebral demyelination, specifically in the pons (central pontine myelinolysis).

Keywords: *Eleterly, hyponatremia, homestasis*

INTRODUCTION

Hyponatremia, serum sodium <135 mMol/L, is the commonest electrolyte imbalance encountered in clinical practice. It is associated with multiple poor clinical outcomes including falls, fractures, increased length of hospital stay, institutionalisation and mortality.

Management of abnormalities in water homeostasis is frequently challenging. Because age-related changes and chronic diseases are often associated with impairment of water metabolism in elderly patients, it is absolutely essential for clinicians to be aware of the pathophysiology of hyponatremia and hypernatremia in the elderly. The sensation of thirst, renal function, concentrating abilities and hormonal modulators of salt and water balance are often impaired in the elderly, which makes such patients highly susceptible to morbid and iatrogenic events involving salt and water. Clinicians should use a systematic approach in evaluating water and sodium problems, utilizing a comprehensive history and physical examination, and a few directed laboratory tests to make the clinical diagnosis. Furthermore, clinicians should have a clear appreciation of the roles that iatrogenic interventions and lapses in nutrition and nursing care frequently play in upsetting the homeostatic balance in elderly patients, particularly those who are in long-term institutional and inpatient settings.

The ageing process is frequently accompanied by various maladaptations to stress in different organ systems and physiologic functions. The complex mechanisms associated with water metabolism are particularly vulnerable to age-related maladaptations and to the various disease processes and medical interventions that frequently occur in the elderly.

It is estimated that nearly 7 percent of healthy elderly persons have serum sodium concentrations of 137 mEq per L or less.[1] Cross-sectional studies suggest that hyponatremia may be present in 15 to 18 percent of patients in chronic care facilities.[2] A 12-month longitudinal study showed that more than 50 percent of nursing home residents had at least one episode of hyponatremia.[3] Thus, it would be an unusual day in many family physicians' practices that at least one diagnostic or therapeutic issue related to water metabolism did not arise.

NORMAL WATER METABOLISM

The status of water homeostasis in the body is efficiently reflected by the serum sodium concentration. Sodium is the dominant cation in extracellular fluid and the primary determinant of serum osmolality. If a change in the total-body water concentration occurs without an accompanying change in total-body solute, osmolality changes along with the serum sodium concentration. Simply put, hypernatremia and hyponatremia are primary disturbances of free water and reflect pathological alterations in water homeostasis.

At steady state, water intake and water losses are matched. If losses exceed intake, thirst is stimulated and fluid

*Professor of Medicine, Govt.Medical College, Amritsar, 143001, India

intake increases. Thirst is stimulated when the serum osmolality rises above 290 to 295 mOsm per kg (290 to 295 mmol per kg). Thirst is also stimulated by hypotension and hypovolemia. Renal water conservation is the first-line defense against water depletion, but this mechanism is insufficient in settings of significant dehydration and hypertonicity. Moreover, the stimulation of thirst is required to ultimately maintain homeostasis. In conditions of volume depletion or hypertonicity, secretion of antidiuretic hormone (ADH) is stimulated, water is reabsorbed, and concentrated urine is excreted. In conditions of hypotonicity, ADH is normally suppressed, and dilute urine is excreted.

IMPACT OF AGEING ON WATER METABOLISM

The age-related decrease in total body water (relative and absolute) makes elderly persons markedly susceptible to stresses on water balance.[6] Average healthy 30 to 40-year old persons have a total-body water content of 55 to 60 percent. By age 75 to 80 years, the total-body water content has declined to 50 percent, with even more of a decline in elderly women.[7]

Clearly, the thirst mechanism diminishes with age, which significantly impairs the ability to maintain homeostasis and increases the risk for dehydration.[8] There is also a clear age-related decrease in maximal urinary concentrating ability, which also increases the risk for dehydration.[9] ADH release is not impaired with ageing, but ADH levels are increased for any given plasma osmolality level, indicating a failure of the normal responsiveness of the kidney to ADH.[2]

The ability to excrete a water load is delayed in the elderly.[10] This propensity may contribute to the frequently observed episodes of hyponatremia in hospitalized elderly patients who are receiving hypotonic intravenous fluids or whose fluid intake is not properly monitored.[2]

Other changes in renal physiology and anatomy that increase the elderly patient's susceptibility to alterations of water imbalance include decreased renal mass,[11] cortical blood flow[2] and glomerular filtration rate,[12] as well as impaired responsiveness to sodium balance.[2]

The impact of a lifetime of accumulated disease and comorbidities must also be duly considered in every clinical situation with an elderly patient, in addition to age-related physiologic changes. The elderly patient has a diminished reserve of water balance and an impaired regulatory mechanism. Thirst sensation, concentrating abilities and hormonal modulators of salt and water balance are sluggish and highly susceptible to being overtaken by morbid or iatrogenic events.

ETIOLOGY

Hyponatremia is most commonly associated with states of hypotonicity; however, it can also occur in states of normal or high osmolarity. Hyponatremia in association with normal tonicity is a laboratory phenomenon. It is caused by extreme hyperlipidemia or hyperproteinemia[13,14] and now rarely occurs as a result of improved laboratory techniques for measuring serum sodium. Hypertonic hyponatremia is caused by the accumulation of osmotically active non-electrolyte solutes, which causes the movement of water from the intracellular compartment to the extracellular fluid.[14] This action dilutes the sodium concentration and is usually the result of hyperglycemia.

Hypotonicity is most commonly associated with hyponatremia. Hypotonic hyponatremia can be divided into two categories based on the extracellular fluid volume: hypovolemic and euvolemic hypotonic hyponatremia. Hypovolemic hyponatremia is caused by true volume depletion or by volume depletion of the effective arterial volume.

Euvolemic hyponatremia is usually the result of an increase in free water with little change in body sodium. This condition is most commonly associated with nonosmotic vasopressin secretion. Causes of euvolemic hyponatremia include certain drugs (such as hydrochlorothiazides), glucocorticoid deficiency, hypothyroidism, the syndrome of inappropriate antidiuretic hormone secretion (SIADH) and reset osmostat syndrome.[13]

SIADH is characterized by the continued release of ADH in the face of dilution of body fluids and increased extracellular volume. The urine is "inappropriately" concentrated when the body is trying to correct a state of hypotonicity. SIADH is a diagnosis of exclusion.

EVALUATION

Patients with hyponatremia usually are asymptomatic. Symptoms often do not occur until the serum sodium concentration drops below 125 mEq per L (125 mmol per L). The most common manifestations of hyponatremia are neurologic, the result of swelling of brain cells secondary to intracellular movement of water. Patients with severe hyponatremia may present with nausea, headache, lethargy, confusion, coma or respiratory arrest. If hyponatremia develops rapidly, muscular twitches, irritability and convulsions can occur. The only manifestations of chronic hyponatremia may be lethargy, confusion and malaise.

The first step is to determine the plasma and urine osmolality and to perform a clinical assessment of volume status. If the urine osmolality is less than 100 mOsm per kg

(100 mmol per kg), evaluation for psychogenic polydipsia should be conducted. If the urine osmolality is 100 mOsm per kg or greater, renal function should be evaluated. Evidence of renal failure (elevated blood urea nitrogen [BUN] and creatinine levels) points to primary renal disease as the likely cause of hyponatremia. If BUN and creatinine levels are normal, assessment of the extracellular fluid volume should be conducted. The urine sodium determination should be used as a guide in noneuvolemic states to determine whether further evaluation for renal failure or pathophysiologic renal sodium loss is required. It should be kept in mind, however, that diuretics can alter the urine sodium concentration and confuse the clinical picture.

TREATMENT

If the patient is symptomatic because of severe hyponatremia, it is generally considered safe to raise the serum sodium concentration at a rate of 0.6 to 2.0 mEq per L (0.6 to 2.0 mmol per L) per hour or no more than 12 mEq per L (12 mmol per L) in the first 24 hours. A too-rapid increase in the serum sodium concentration, with the rapid transfer of free water out of the brain cells, can cause diffuse cerebral demyelination, specifically in the pons (central pontine myelinolysis). In the setting of acute hyponatremia, when rapid correction of the serum sodium concentration may be needed, hypertonic solutions such as 3 percent saline may be administered at a rate of approximately 1 to 2 mL per kg per hour.[13,17] Loop diuretics are often used in conjunction with normal saline or 3 percent saline to prevent volume overload and the potentiation of congestive heart failure.

Because hyponatremia is usually only mildly symptomatic or asymptomatic, treatment should be tailored to the clinical situation. Hyponatremia in a euvolemic patient can be managed with fluid restriction and discontinuation of any medications that affect free-water excretion, along with initiation of treatment of the underlying cause. Fluid restriction must be less than free-water losses, and total fluid intake should typically be less than 500 to 800 mL per day in the elderly patient with euvolemic hyponatremia.[2]

If hyponatremia is secondary to a low extra-cellular volume (volume contraction), the fluid deficit should be corrected by administration of normal saline solution. Once the patient is clinically euvolemic, the drive for the body to produce ADH is gone, and the patient is able to excrete the excess free water.[6] If the clinical picture is one of an "effective" low extracellular volume, but the patient appears to have fluid overload, the underlying cause of the low sodium level, such as congestive heart failure, nephrotic syndrome, cirrhosis or hypoalbuminemia, should be treated. For example, hyponatremia related to heart failure should resolve if treatment to decrease the afterload, increase the preload or increase the contractility of the heart corrects the clinical situation.

SIADH is treated with free-water restriction until the underlying cause of the disorder is corrected. Administration of normal saline is not an appropriate therapy because the sodium may be rapidly excreted while the water is retained, exacerbating hyponatremia.[13] An adjunct to free-water restriction, in some circumstances, is the addition of therapy with demeclocycline (Declomycin) in a dosage of 600 to 1,200 mg per day. Demeclocycline induces nephrogenic diabetes insipidus and helps to correct hyponatremia, especially in a patient in whom free-water restriction is highly difficult.[18] Demeclocycline, however, is contraindicated in patients with renal or hepatic disease.

A worsening in neurologic status during free-water replacement may indicate the development of cerebral edema and requires prompt reevaluation and temporary discontinuation of water replacement. Volume depletion should be corrected before initiating replacement therapy to correct the deficit. If the hypernatremia is secondary to solute excess, a diuretic along with water replacement may be needed. In some circumstances of volume overload, dialysis may be indicated.

A standing prescription for free-water intake that matches losses should be written in the medical record of patients with primary hypodipsia. Hypothalamic diabetes insipidus is treated with ADH replacement. Nephrogenic diabetes insipidus is often treated with a low-salt diet and thiazide diuretics. When possible, precipitating medications should be discontinued and underlying conditions treated to minimize the clinical manifestations.

PREVENTION

One of the most important points with regard to hyponatremia is to recognize the role that the medical care system sometimes plays in precipitating these conditions in frail elderly patients. Meticulous attention to fluid intake and fluid losses is required in all medical settings. The more impaired the patient, the greater the likelihood that water homeostasis will be overcome by medical events. Anticipation that a "sodium/free-water" problem will occur in a patient during hospitalization or in a long-term care facility is perhaps the safest assumption. It is essential for physicians to work with other members of the health care team, including nursing staff, dietary staff and family members, to prevent or at least minimize the degree of disruption to water balance in susceptible patients.

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Influenza-Challenges to Meet

*A.K. PRASAD

Abstract:
Influenza or flu is an acute, contagious viral respiratory illness, and is mostly ignored. Infection occurs in the upper respiratory tract, nose, throat, and at times, descends to the lungs. It is estimated that all over the world, 3–5 million suffer with seasonal influenza and 300,000–500,000 die each year. Children and elderly people suffer more. The annual vaccination is advised to cover any mutation in the circulating virus. Seasonal influenza vaccine is prepared annually to include the most likely strain for the season.

Keywords: *Influenza, flu, RNA virus, contagiousness, vaccination*

INTRODUCTION

Last century three major influenza pandemics wiped 50-100 million human population world over, and the virus prevailing all the year round, peaking twice in India, is ignored by most as common cold.

It is paradoxical as we all have suffered from influenza infection but yet we ignore this as common cold. Influenza is not just common cold, and if ignored specially in person with chronic conditions one could get into serious consequences and end fatally. The preventive vaccine is available for over sixty years but very much underused in developing countries including India.

INFLUENZA

Influenza or flu is an acute, contagious viral respiratory illness, and is mostly ignored. Infection occurs in the upper respiratory tract, nose, throat, and at times, descends to the lungs. It can cause mild-severe-illness, and when complicated with bacterial infection, particularly in at-risk population, can lead to serious consequences including death. It is estimated that all over the world, 3–5 million suffer with seasonal influenza and 300,000–500,000 die each year. Children and elderly people suffer more.

Infection spreads mainly by droplets, when people with flu, cough, sneeze or talk. Less often, a person also gets infected by using or by touching infected material or surface contaminated with flu virus and then touching their own mouth, eyes, and nose. Mostly very young children, acquire infection during fondling by others, who are already infected. School going children pick up infection at School and bring home or vice versa. The biggest killer is Influenza.

*Chairman, Influenza Foundation of India, Member Asia Pacific Alliance for the Control of Influenza (APACI) Ltd. New Delhi

REAL KILLER

Anthrax? Ebola? No, the real killer is… Flu (Influenza). This unpredictable virus kills approx. 500,000 people each year and goes un-noticed. USA uses preventive influenza vaccine in old/ young and risk population and yet each year over 36,000 people die due to influenza and influenza complications.

During 2014-15 Ebola killed 11,000 worldwide and influenza kills between 250,000 to 500,000 in a year. (Khan; the Next Pandemic, Peruses Book Group ,2016).

INFLUENZA VIRUS

Influenza virus is a single stranded RNA virus, belonging to Orthomyxoviridae family; consisting of three genera (subtype A, B & C). All the three affect human being but we are more concerned with subtype A (which affects man and mammals, including birds) and B subtypes. The subtype Influenza C virus, infection is subclinical to clinical, with a illness for half- a-day to one day or, so.

Subtype A causes acute serious infection of UTRI in men and other species and in persons with conditions, young and old, causing many-a-times fatal infection. Pregnant women suffer serious infection due to this and many times with serious consequences. There are two surface antigens: haemaggluttin (H) and neuraminidase (N) which keep on mutating all the time. This makes serious concern as these antigens of subtype A from other hosts too in genetic reorientation, gets / jumps the host barrier link and at times affinity as human pathogen causing serious infection in human. Although influenza vaccine is the best prevention but the surface antigenic changes in the virus, makes the vaccine as a yearly event.

NEED FOR PROTECTION

Protection is needed right from the time the embryo is growing in the mother's womb. This means influenza protection and prevention to the mother for protecting the child in the mother's womb. This not only protects pre mature delivery, anatomical defects during embryo growth and other fatal complications.

Influenza virus is present all the year round, in circulation (10-15%) but increases during epidemic/ pandemic to 40-50% in old adults, children and in risk populations. Old adults suffer more due to other complications and declining immune system.

The alertness of influenza due to Pandemic Preparedness Plan (PPP) enforced by WHO in 2005 all over the world and in particular in S E Asian countries, after the alert of highly pathogenic influenza virus from bird's anticipated pandemic due to H5N1 came handy in control and management of unexpected pandemic due to swine H1N1 (known as pH1N1)of 2009. This pH1N1 virus was different from the swine H1N1 of 1918-1919 (pandemic virus) as it had three mutations (swine, bird & human) before causing infection in human.

The pH1N1 fortunately had very high invasiveness but low pathogenicity. It spread fast and in three months time over 180 countries in the world got infected but due to low pathogenicity, deaths were little in comparison to other past pandemics.

This virus, pH1N1 has replaced the old H1N1 virus in circulation and in the vaccine composition.

PERIOD OF CONTAGIOUSNESS

Infection can be passed to someone else before you know you are sick, as well as while you are sick. Most healthy adults may be able to infect others, beginning one day before symptoms develop and up to 5–7 days after becoming sick. Some people, especially young children and people with weakened immune systems, might be able to infect others for an even longer time.

HISTORY

The disease influenza is recognized for over 2,000 years. Hippocrates described this in 5th century. Since 1510 till 1930 some 30 widespread epidemic and pandemics have been described.

Influenza virus was first isolated in swine by Shope in 1930. The human influenza virus (type A) was first isolated by Smith *et al* in 1933. The other two types: (1) influenza type B was isolated by Francis and Magill independently in 1940 and (2) influenza type C was isolated by Taylor in 1947. Epidemics due to influenza among man and animals are known from long time, and epidemiologists have been fascinated about the influenza outbreaks in the past.

The virus is pleomorphic, spherical to filamentous in shape, 80–120 nm in size, single stranded, and eight segmented RNA virus belonging to Orthomyxoviruses. This virus has most of the time sprung surprise to most as a human pathogen of varied pathogenicity. There are sixteen serosubtypes of hemagglutinin and nine serosubtypes of neuraminidase. All these subtypes exist in birds. The human influenza virus subtypes contain H1 and H3, and N1 and N2. The H2—a human subtype pathogen, but does not exist in circulation today. Normally, when a new strain reappears, the older strain disappears from the circulation. But since 1977 when an old strain (H1N1) reappeared, this strain along with the H3N2 stain, both are in circulation. Influenza type A has been the major pathogenic strain in human and animals including birds for all major outbreaks and pandemics. Whereas, type B and C are human pathogen, causing only localized outbreaks.

EPIDEMIOLOGY

The virus is prevalent all over the world. Overcrowdings, congested population, sudden cold and humid climate favour the virus circulation. Animal hosts, pigs and birds become the reservoir for the development of human influenza strains, in dual infection with human and animal influenza virus.

Today, among the emerging and re-emerging human viral diseases, influenza is a concern.

CLINICAL INFLUENZA

There is a general symptom of the acute respiratory tract infection with high fever, dry or runny stuffy nose, with non-productive cough, sore throat, headache, bodyache, fatigue, malaise, prostration and gastrointestinal (GI) disturbance sometimes in children.

High morbidity and low mortality is the characteristics of the disease. The disease has a short incubation period of 1–2 days and lasts for 3–5 days in uncomplicated case.The disease usually is seen with high fever, cough, sore throat, malaise, headache, vomiting in children and diarrhea. Pregnant women are in high risk group and show most of the above symptoms. Sometimes, there is breathlessness with features suggesting acute lung conditions with hypoxia. In further deterioration there is acute respiratory distress syndrome (ARDS) and may lead to fatal results.

COMPLICATIONS

Complications of influenza can include bacterial pneumonia, ear infections, sinus infections, dehydration and worsening of chronic medical conditions, such as congestive heart failure, asthma or diabetes.

DIAGNOSIS

The diagnosis is based on history, clinical symptoms and physical examination, and confirmed by laboratory tests by virus isolation, serology, immunofluorescent microscopy, reverse transcriptase-polymerase chain reaction (RT-PCR), and chest radiograph.

Seasonal influenza and Pandemics

Seasonal human influenza outbreaks or epidemics are due to circulating influenza type A and B viruses undergoing drift in the virus. The seriousness of the disease and outbreak depends on the amount of the drift. In India, one observes two peaks in the influenza incidence. One, in and around rainy season and another during the winter months when there is sudden fall in the atmospheric temperature.

Minor drift in the surface antigen of influenza virus (H and N) is the reason for the yearly outbreak of the disease. Whenever there is a shift in the surface antigenicity, pandemic results. The notables in the past 100 years are pandemics of 1918-1919 (H1N1); 1957 (H2N2); 1968 (H3N2) and 2009 (p H1N1). Influenza pandemics is the singular disease in which over 50–100 million people died; a fact unknown to have taken place due to any other human disease in a century. This figure is scary and makes one to think about influenza, which even today is ignored as common cold.

There have been 15,174 deaths reported from 209 countries till February 2010. In India, during this period 1,135 deaths were reported. Already reports in 2012, about 13 deaths have occurred due to pH1N1 virus in Maharashtra, Rajasthan, Andhra Pradesh and Tamil Nadu.

DISEASE BURDEN

There has been no systemic study reported from India on the disease burden due to influenza. But, loss of school days, absence from work places, parents on leave due to sick children at home, industry losses of production hour, burden on the health budget and strain on attending hospital staff, etc. cause large economic losses.

PREVENTION

Influenza seasonal vaccination is the best prevention of the disease. At least the populations at risk should be covered by the seasonal influenza vaccine.

TREATMENT

Treatment is symptomatic and palliative with bed rest. The patient is advised to increase fluid intake. In serious cases early use of antiviral and use of antibiotics is advised in case any bacterial infection is suspected. Influenza is a self-limiting infection and in uncomplicated cases recovery takes place in 5–7 days with bed rest.

Antiviral treatment is advised in anticipation of serious influenza infection but needs to be used early, within 48 hours of the onset of the disease. Amantadine and rimantadine are M2 inhibitors and osaltamivir or zanamivir, which is neuraminidase inhibitor, are the drugs of choice.

CDC RECOMMENDATIONS FOR INFLUENZA VACCINE IN 2016-17

- Most important changes suggested for the year 2016-17: Only influenza injectable vaccine recommended. LAIV (which is Nasal Spray Vaccine) not suggested due to its effectiveness concern.
- Both Trivalent & Quadrivalent vaccine available for use. (MMWR Mob Mortal Recom. Rep. 2016;65:1-54.

The annual vaccination is advised to cover any mutation in the circulating virus. Seasonal influenza vaccine is prepared annually to include the most likely strain for the season.

There are two types of flu vaccines:

1. Inactivated vaccines (containing killed virus).
2. For use in 6 months of age and older, including healthy people, people with chronic medical conditions and pregnant women.

The nasal spray flu vaccine: a vaccine made with live weakened flu virus that is given as a nasal spray (sometimes called live attenuated influenza vaccine (LAIV)]. The viruses in the nasal spray vaccine do not cause flu. LAIV is approved for use in healthy people 2–49 years of age including those women who are not pregnant.

In about 2 weeks after vaccination, antibodies develop that protect against influenza virus infection.

The seasonal flu vaccine protects against the three influenza viruses that research suggests will be most common.

When to get Vaccinated Against Seasonal Flu?

Yearly flu vaccination should begin in September or as soon as vaccine is available, and continue throughout the flu season which can last as late as May.

Who is at High-Risk for Developing Flu-related Complications?

- Children younger than 5 years, but especially children younger than 2 years old age
- Adults 65 years of age and older
- Pregnant women
- People who have medical conditions including:
  - Asthma (even if it is controlled or mild)
  - Neurological and neurodevelopmental conditions [including disorders of the brain, spinal cord, peripheral nerve and muscle such as cerebral palsy, epilepsy (seizure disorders), stroke, intellectual disability (mental retardation), moderate to severe developmental delay, muscular dystrophy or spinal cord injury]
  - Chronic lung disease [such as chronic obstructive pulmonary disease (COPD) and cystic fibrosis]
  - Heart disease (such as congenital heart disease, congestive heart failure and coronary artery disease)
  - Blood disorders (such as sickle cell disease)
  - Endocrine disorders (such as diabetes mellitus)
  - Kidney disorders
  - Liver disorders
  - Metabolic disorders (such as inherited metabolic disorders and mitochondrial disorders)
  - Weakened immune system due to disease or medication (such as people with HIV, AIDS, cancer or those on chronic steroids)
  - People younger than 19 years of age who are receiving long-term aspirin therapy
  - People who are morbidly obese [Body Mass Index (BMI) of 40 or greater]

Who else should get vaccinated?

Other people for whom vaccination is especially important are:

- People who live in nursing homes and other long-term care facilities
- People, who live with or care for those at high-risk for complications from flu, including:
  - Healthcare workers
  - Household contacts of persons at high-risk for complications from the flu
  - Household contacts and caregivers of children younger than 5 years of age with particular emphasis on vaccinating contacts of children younger than 6 months of age (children younger than 6 months are at highest risk of flu-related complications but are too young to get vaccinated).

Who should not be vaccinated Against Seasonal Flu?

- People who have severe allergy to chicken eggs,
- People who had a severe reaction to an influenza vaccination in the past
- Children younger than 6 months of age. People who have a moderate or severe illness with a fever should wait to get vaccinated until their symptoms lessen.
- People with a history of Guillain-Barré Syndrome GBS) that occurred after receiving influenza vaccine.

Countries which practice use of Influenza vaccine

Top ten countries in the world using preventive vaccine are Canada, Korea, USA, Japan, Australia, Spain, Germany, Italy, UK, and Hong Kong (SAR).

India after 2009 Influenza pandemic licensed four Indian vaccine manufacturing companies to manufacture influenza vaccine but this vaccine is not listed in the routine preventive vaccine.

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Nocturia in Elderly- Clinical Implications

*S. RAMNATHAN IYER

Abstract:
Nocturia is a multifactorial disorder. The symptom which is important to treat, often escapes the attention of both physician and patient. A careful history often points to its underlying cause. Obstructive sleep apnea (OSA) which is a constituent of sleep disordered breathing (SDB)has recently been recognized as a cause of nocturia.The prevalence of SDB is high in the elderly. In fact the presence of nocturia should heighten the suspicion of OSA. Management of OSA is highly rewarding. Nocturia is bothersome and successful treatment is reflected in better quality of life.

Keywords: *Elderly, nocturia, obstructive sleep apnea, diabetes mellitus.*

INTRODUCTION

Nocturia is a complex and multifactorial condition and is a common occurrence in elderly population. Physiologically there is no urge to urinate at normal nocturnal sleep times with duration of 6-8 hours. Nocturia is one of the most troublesome urologic symptoms. However some elderly subjects do not consider it as bothersome. As per International Continence Society, nocturia is defined as the interruption of sleep one or more times at night to void.[1] Nocturia needs attention and treatment since it is associated with an increased risk for morbitidy and even mortality.[2]

PREVALENCE

Nocturia is relatively uncommon among younger adults. The prevalence of nocturia increases with advancing age in both men and women. The prevalence of nocturia between 60-70 years varies between 11-50 % while it rises to 80-90 % in subjects aged 80 yrs or more.[3] In our study we observed nocturia in 71 % of elderly subjects.[4]

Some elderly subjects do not consider nocturnal urination to be bothersome even if they have number of episodes. The presence of nocturia disrupts sleep leading to daytime somnolence, cognitive dysfunction, depressive symptoms and a reduced sense of well being. Daytime somnolence can be responsible for motor vehicular accidents. It is also a risk factor for falls in the elderly.[5]

*Consultant Physician and Consultant Sleep Medicine,
Ambika Clinic, Manpada Road, Dombivli, East Dist. Thane, Maharashtra

PATHOPHYSIOLOGY

Nocturia involves complex interplay of several factors. Age related changes in the urologic apparatus, nephrological system coupled with sleep disorders like sleep disordered breathing play major role. Urinary infections are also important. Elderly often suffer from cardiometabolic disorders which demand pharmacologic interventions and the drugs used also contribute to nocturia.

The causes of nocturia in elderly are:

A. Bladder dysfunction

1. Bladder outlet obstruction (e.g., benign prostatic hyperplasia)
2. Urinary tract infection.
3. Severe detrusor dysfunction/ detrusor overactivity/large residual volume.
3. Decreased bladder functional capacity.
4. Pelvic floor laxity caused by conditions like cystocele, uterine prolapse.
5. Bladder stones.
6. Bladder tumors.

B. Excessive nocturnal urine production

1. Oedema forming states e.g., Congestive cardiac failure, nephrotic syndrome.
2. Obstructive sleep apnea.
3. Diabetes mellitus (can coexist with obstructive sleep apnea)
4. Medications e.g., Diuretics, antihypertensive drugs.
5. Compulsive water drinking by elderly at night with a view to detoxify the body.
6. Chronic kidney disease.
7. Diabetes inspidus.
8. Venous stasis-e.g., Varicose veins.
9. Neurodegenerative disorders e.g., Parkinson's disease.
10. Autonomic neuropathy.
11. Hypokalemia and hypercalcemia causing nephrogenic diabetes inspidus.
12. Nocturnal polyuria syndrome.

CLINICAL APPROACH

Nocturia patients often seek urologic consultation. It is important, not to assume nocturia as urologic problem. Medical and surgical causes for nocturia can coexist in the same patient. Bruzkewitz *et al* noted that nocturia persisted in 25 % of men who underwent prostate surgery for presumed bladder outlet obstruction and were monitored for 3 years.[6]

A careful history and physical examination often gives the clue. Bladder outlet obstruction symptoms like decreased urinary stream, hesitancy and a sense of incomplete voiding can easily be recorded. It is important to note that urinary infections are common in elderly and are often asympotamatic. At least 20% of women and 10 % of men older than 65 years of age have bacteruria.[7]

The typical clinical manifestations of UTI like fever,dysuria,frequency, urgency may be subtle or even absent. Change in mental status, anorexia, fatigue may be present.These symptoms can also be attributed to ageing. Frequency, urgency and bladder spasms suggest infection while hematuria points to stones/tumors. Clinical examination to rule out congestive heart failure and nephritic syndrome needs to be done. Comorbid conditions also need be assessed. Central sleep apnea and Cheyne Stokes breathing are often associated with CCF. Chronic kidney disease may escape attention. Routine urine analysis may be very helpful. In India elderly have some impressions about detoxifying the body systems by consuming large quantities of water in late night and early morning. This water is usually stored in copper vessel. Multiple diseases and many drugs plague the elderly. Diuretics and antihypertensives are often prescribed. A detailed drug history is important.

SLEEP HISTORY-SLEEP DISORDERED BREATHING

Sleep disordered breathing is a spectrum of disorders consisting of snoring, upper airway resistance syndrome, obstructive sleep apnea and obesity hypoventilaltion syndrome. It is well known that OSA has several cardiometabolic and neurological consequences viz hypertension,ischemic heart disease, type 2 diabetes mellitus, stroke, dementia, aggravated ageing process and others.[8]

Several studies show that the prevalence of sleep disordered breathing increases with age ranging from 5% to 15% in middle aged adults to approximately 24% in community dwelling adults.[9,10] In our study the prevalence of snoring in elderly was found to be 69.5% (75.3 % males and 24.7% females).[4]Nocturia is a prominent symptom of OSA in elderly. In fact the presence of nocturia in elderly should heighten the suspicion of OSA. The other important symptoms are snoring which may not be loud in elderly, unable to sleep well in supine posture, constantly changing postures in sleep, drooling, daytime tiredness and sleepiness. Sleep is unrefreshed and puffy face, heaviness in head/headache is often noted on awakening.Kayanak *et al*[11] reported that nocturnal urination of more than three times per night had a positive and negative predictive values of 0.71 and 0.62 for severe OSA. It has been postulated by Umalauf *et al*[12] that the negative intrathoracic pressures resulting from occluded breaths cause distension of right atrium and ventricle, this results in the release of atrial natriuretic peptide(ANP) which inhibits the secretion of antidiuretic hormone (ADH) and aldosterone. The consequence is diuresis-nocturia by its effect on glomerular filtration of sodium and water. Another additional mechanism is the increased venous inflow into the right atrium causing atrial expansion at the termination of apnea. An apnea induces venous hypertension in sleep. This also promotes venous thrombosis in legs.

TYPE 2 DIABETES MELLITUS AND OSA AND NOCTURIA

Diabetes mellitus is a common cause of nocturia. Diabetes can coexist with cardiovascular diseases, also diabetic patients often have obstructive sleep apnea. The prevalence of OSA in obese diabetic patients is high. Foster *et al*[13] reported high prevalence of undiagnosed OSA (86.6%) among obese patients with type 2 diabetes. People over the age of 65 years constitute more than 40 % of cases of diagnosed diabetes.[14] Recently it has been reported that obstructive sleep apnea and type 2 diabetes bear bidirectional relationship.[15]

NOCTURNAL POLYURIA SYNDROME

Nocturnal polyuria syndrome (NPS) is observed in elderly where the usual ratio of day to night urine production is altered.[16] Normally after the age of 7 yrs the urine volume during the day is twice the nocturnal urine production. In subjects with NPS more than 35% of the total daily urine output occurs at night despite a normal daily total urine output of 1000 ml to 1,500 ml/day. The cause of excessive urine production at night is not known. Low levels of ADH has been suspected.

MODERN LIFE STYLE AND NOCTURIA

Modern life style has not only affected the youth but also elderly. The loved ones often come late to home from office. Elderly at home suffer from rebound sleep deprivation. Also the anxiety to get up early to board train/bus early in the morning induces considerable anxiety. This anxiety also affects elderly at home. Anxiety is known to promote urination.

Orthostatic vital signs should be obtained to evaluate for evidence of autonomic neuropathy. A careful examination of legs to discover varicose veins is valuable.

Prostatic enlargement can be assessed clinically and by sonography. Large postvoid residual urine points to detrusor dysfunction.

Finally a careful clinical examination will guide the physician to take appropriate help of pathological and radiological investigations. A polysomnogram is often useful.Urodynamic studies may be required.

MANAGEMENT

Management depends on the cause. Elderly often prefer non-invasive modes of therapy. Continuous positive airway pressure has been found to useful to abolish nocturia in patients of obstructive sleep apnea. This mode of therapy has also been found to increase stage 3 and 4 sleep which are decreased in elderly.[8] Anticholinergic drugs may be useful in overactive bladder. Patients with poor detrusor function may require intermittent catheterization. Alpha adrenergic blocking agents and 5-reductase inhibitors may be helpful in patients with bladder outlet obstruction and prostatic hypertrophy. Surgery may also be required in refractory cases.

Several drugs have been used to treat nocturnal polyuria with varying degress of success. Restricting fluid intake about 6 hours before recumbency is usually not helpful. Dependent oedema may require compression stockings. Loop diuretics administered 6-8 hours before going to bed may be helpful. A transient volume depletion is created. Lose *et al*[17] has suggested usage of desmopressin. The common adverse effects are headache, nausea, dizziness, peripheral oedema and hyponatremia. Patients of NPS may respond to desmopressin.

CONCLUSIONS AND FUTURE DIRECTIONS

Nocturia poses a significant challenge to both patient and physician. Providing good quality of life to elderly subjects is the prime goal in the practice of geriatric medicine. Both activities of daily living and instrumental living can be affected by poor quantity and quality of sleep. Elderly often ignore night frequencies considering the issue to be related to ageing process. Proper clinical approach and dissection of sleep complaints is helpful. Management of nocturia is highly rewarding.

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Infections - Choice of Antibiotics

*SANDEEP P. TAMANE

Abstract:
Elderly represent one of the fastest growing segments of the population and their use of medications is obviously increasing significantly including the use of anti-microbials. There are many unique aspects of anti-microbial use in elderly patients which need to be kept in mind prior to prescribing.
Physiological changes associated with ageing resulting in altered pharmacokinetics, impaired renal function, impact of polypharmacy with resulting risk of significant drug interactions or an adverse drug event all make anti-microbials prescribing and dosing difficult in Geriatric Practice. Increasing incidence of drug-resistance and super-infections (Clostridium difficile, yeast) are also major concerns.
Careful attention to these factors is mandatory for any clinician prescribing anti-microbials to ensure patient safety.

Keywords: *Infections, anti-microbials, renal dysfunction, drug interactions, adverse drug events, polypharmacy, anti-microbial resistance*

WHY ARE ELDERLY AT INCREASED RISK FOR INFECTIONS ?

Immunosenescence, poor nutrition, functional impairments, presence of co-morbid / chronic illnesses (such as Diabetes Mellitus, malignancies), reduced efficacy of usual protective barriers (cough, skin), increased exposure to immune-suppressive drugs and to micro-organisms, and increased use of invasive devices are important reasons for higher risk of infections as well as morbidity and mortality related to infections in elderly.

WHAT ARE COMMON INFECTIONS ?

Pneumonia, Urinary Tract Infections, CNS infections (meningitis), Skin and soft tissue infections (Cellulitis, Herpes Zoster), Bone and joint infections (Osteomyelitis, Septic arthritis) as well as viral infections such as Influenza and Dengue Fever are commonly encountered infections in older persons.

Consultant Physician & Geriatrician, Pune, Maharashtra.

WHAT ARE THE DIAGNOSTIC CHALLENGES?

1. Like any other illness, classical signs and symptoms may not always be present, e.g., fever and leucocytosis; in fact some elderly patients may be hypothermic inspite of severe infections.
2. Non-specific / Atypical Presentations– e.g, changes in appetite, recurrent falls, impaired cognition, reduced functional status, lethargy, incontinence etc.
3. Impaired communication of symptoms
4. Difficulty in interpretation of assessment
   e.g., asymptomatic bacteriuria/ pyuria, lung findings
5. Limited availability / use of diagnostic testing

GENERAL PRINCIPLES OF PRESCRIBING ANTI-MICROBIALS IN ELDERLY PATIENTS

1. Risk of an adverse drug event, a harmful drug interaction, and role of older persons as a potential reservoir for resistant pathogens should be kept in mind.
2. Anti-microbial treatment should be initiated only when

there is a clear potential clinical benefit. Clinicians should discourage use of anti-microbials in ways that promote resistance.

3. Empirical broad-spectrum anti-biotics should be narrowed when a pathogen is identified. Such targeted therapies minimize the risk of resistance and may limit the scope of potential adverse events.
4. 'Start low, go slow' approach may not always be appropriate for the anti-microbial use in elderly and must be balanced with clinical scenario.
5. Physiological changes that occur with ageing affect the pharmacokinetic parameters of many medications including anti-microbials. Thus, changes in absorption, distribution, metabolism and renal elimination of many anti-microbials occur with ageing which can adversely affect clinical outcomes.

IMPACT OF POLYPHARMACY

Polypharmacy (concomitant use of 5 or more medications) is a common problem in Geriatric practice and is associated with a significantly increased risk of a harmful drug interaction.

Many anti-microbials interact with commonly prescribed drugs in elderly leading to adverse clinical outcomes.

ANTI-MICROBIAL INDUCED ADVERSE EVENTS

Adverse Drug Events occur more frequently among older persons.

Polypharmacy, co-morbidities and difficulty with adherence to therapy as well as age-related changes in Pharmacokinetics / Pharmacodynamics contribute significantly to the higher incidence.

Failure to make appropriate dosage adjustments for patients with renal dysfunction is also a significant contributor to these adverse events.

Following is a list of some common antimicrobial induced adverse events in older persons –

1. Amino-glycosides – Nephro and Oto toxicity
2. Anti-tubercular drugs – Hepatotoxicity
   Isoniazide –Peripheral Neuropathy
   Rifampicin – Red-orange discoloration of urine, tears and sweat, and drug interactions
3. Beta- lactams – Diarrhoea, Drug fever, Interstitial Nephritis, Rash, Pancytopenia
4. Carbepenems – Seizure
5. Clindamycin – Diarrhoea and *Clostridium difficle* associated colitis
6. Fluoroquinolones – Nausea, Vomiting, CNS effects, Reduced seizure-threshold, QT- prolongation (including Torsade)
7. Linezolid – Thrombocytopenia, Anaemia
8. Trimethoprim – Sulphamethoxazole – Blood dyscrasias, Drug fever, Hyperkalemia, Rash
9. Macrolides and Azalides – GI intolerance, QT-prolongation, Ototoxicity
   Erythromycin and Clarithromycin – Cholestatic Hepatitis and Drug interactions
10. Amantadine and Rimantadine – CNS effects
11. Tetracycline – Photosensitivity
    Minocycline – Vertigo
12. Triazole anti-fungals
    Itraconazole and Voriconazole – GI intolerance, Hepatotoxicity, Drug Interactions
    Voriconazole – Photosensitivity and Visual Disturbances

ANTIBIOTIC RESISTANCE

This is a global public health threat and is particularly concerning in Long Term Care Facilities.Resistance increases risk of hospitalization, morbidity / mortality and health care costs.Most concerning among this is MRSA, VRE, Fluoroquinolone resistance, MDR gram negative bacterial resistance, MDR TB.

Increased exposure to health care system, increased and inappropriate exposure to anti-microbials, reduction in immune function, functional status / hygiene, increased use of invasive devices, close contact with other residents/ medical staff and inability to adhere to infection control policies are reasons for increasing anti-microbial resistance in elderly leading to adverse clinical outcomes.

SUMMARY

Numerous challenges exist with use of anti-microbials in elderly. These drugs can be life-saving but also carry significant potential harms if not used judiciously.Risk of adverse effects and antibiotic resistance can be minimised in elderly by appropriate dosing in patients with impaired renal/ hepatic function and those with low body weight especially with body weight less than 45 kg; by paying attention to drug interactions especially in patients on multiple medications and by adhering to guidelines for initiation of antibiotics.Most anti-microbials need dose adjustment in renal dysfunction except cloxacillin, ceftriaxone, azithromycin, doxycycline, moxifloxacin. Clinicians must consider non-infectious causes of fever and also discriminate between colonisation and infection and must ideally obtain cultures prior to starting anti-microbials.

Falls: Revisited

*AK SINGH

Abstract:
Fall is a symptom not a disease. In elderly, falls are multifactorial. Falls are highly preventable, if the causative factors are properly searched out and eliminated. Diminished alertness, poor concentration, general fatigue, drug induced sedation and impaired situational judgement increases the risk of falling. Balance is the process by which individuals maintain and move their bodies in a specific relationship to the environment. Some degree of imbalance is present in all individuals older than 60 years. This is the result of a generalized functional degradation. Falls are a highly prevalent disorder in the elderly. It is estimated that 1/3rd of elderly people living at home will have at least 1 fall within 12 month period.

Keywords: *Falls, postural sway, balance, post fall anxiety syndrome, benign panoxysmal postional vertigo.*

Falls are very common at extremes of age i.e., in both childhood and in elderly population, probably due to immature balancing systems in children and due to blunting of reflexes in older age group. Achievement of an upright posture is among one of the most significant developments in the evolution of man. A person in his erect posture is in equilibrium but is never still, rather he is in a state of constant movement known as postural sway. This postural control is a skill acquired in childhood. This control does not vary significantly till 60 years of age but begins to deteriorate in elderly.

Balance is the process by which individuals maintain and move their bodies in a specific relationship to the environment. It is an automatic & unconscious process that allows individuals to resist the destabilizing effect of gravity. Balance is essential for purposeful movement. Some degree of imbalance is present in all individuals older than 60 years. This is the result of a generalized functional degradation. Initially the imbalance is situational & manifests when the correcting reflexes cannot meet the demands of a challenging environment such as a slippery surface. As the functional degradation progresses, the imbalance occurs during everyday activities. Independent ambulation becomes difficult and the likelihood of falls increases.

The center of gravity (COG) of the body lies around second sacral vertebrae. For maintaining an erect posture in equilibrium, a plumb line must fall through the center of gravity within the base formed by the two feet. If this equilibrium is disturbed by displacement e.g., by taking a step then corrective reflexes immediately come into action to prevent instability. These corrective reflexes are controlled by a complex central mechanism involving the cerebral cortex, basal ganglia, cerebellum and brain stem. Sensory inputs are received from many sources including eyes, ears, neck, skin and antigravity muscles.

Falls are a highly prevalent disorder in the elderly. It is estimated that 1/3rd of elderly people living at home will have at least 1 fall within 12 month period. Incidence increases and reaches about 50% in nursing home residents. The incidence of falls is highest in the 80-84 years age group and in any age group females are more likely to fall than males. In US falls are the leading cause of accidental death and the 7th leading cause of death in people >= 65 years. Around 75% of deaths caused by falls occur in 12.5% of the population who are >=65 years of age.

A loss of balance occurs when the sensory information about the COG is inaccurate, when the execution of automatic righting movements is inadequate or when both are present. The postural control system receives information from receptors in the proprioceptive, visual and vestibular systems as well as from pressure sensors under the skin.

*Consultant Physician & Geriatrician, Varanasi, Uttar Pradesh

Humans seem to rely primarily on signals from the pressure sensors in the legs and torso to maintain good balance. Located beneath the skin, pressure sensors measure the intensity of contact made by different parts of body with the environment. These sensors play a dominant role in the maintenance of balance as they inform about the base of support.

Falls are the expression of postural collapse from a failure to resist the destabilizing effect of gravity. They occur whenever the righting reflexes are either insufficient or too slow to counter the force of attraction exerted by earth's gravity on an individual. In the elderly, falls are usually the result of the accumulation of multiple chronic disabilities. Falls are potentially preventable if the causative factors are recognized. Diminished alertness, poor concentration, general fatigue, drug induced sedation and impaired situational judgement increases the likelihood of falls.

DEFINITION

Fall- A fall results in a person coming to rest on ground or another lower level freely under the influence of gravity. Typically, events caused by acute disorders (e.g., stroke, seizure) or overwhelming environmental hazards (e.g., being struck by a moving object) are not considered falls.

Recurrent falls- Two or more fall events within a period of 6 months.

Clustering- When several falls occur within a short period of time. It is associated with poor prognosis.

Drop attacks- Drop attacks are sudden falls occurring without warning and which are not accompanied by neurological signs or loss of consciousness. It is usually not possible for the person to get up without aid. Sometimes if the victim is able to press the soles of his feet against a wall, tone returns and he can rise unaided. The condition is characterized by a transient paralysis affecting the legs and some of the trunk muscles. The weakness may persist for many hours if the patient is not aided. Aetiology is multifactorial. Some postulate brain stem ischemia but definite evidences are not there.

IMPLICATIONS

Falls threaten the independence of elderly people and cause a cascade of individual and socioeconomic consequences.

More than 80% of hip fractures in the elderly are due to falls. Older people are more susceptible to fall related injuries resulting in disability, chronic pain, loss of independence, reduced quality of life and even death. After falls many elderly restrict their daily activities like shopping, cleaning, washing, walking etc. Post fall anxiety syndrome or fear of falling is a state of mind in which an elderly refuses to move for fear of further fall and injury inspite of normal neurological status. It develops in about 20-40% of elderly. It is often associated with living alone, cognitive impairment, depression and balance and mobility impairment as well as history of fall.

Most of the physicians remain unaware of falls in those patients who do not present with an injury, because a routine history and physical examination typically does not include a specific evaluation for falls. Under reporting of falls is very common in elderly. Many of them are reluctant to report a fall because they erroneously believe that it was because of ageing process. Sometimes they purposefully hide the event due to a fear of being restricted in their activities or being institutionalized.

AGE RELATED CHANGES

Age related morphological changes occur in all body systems including those essential for the maintenance of posture. Sensory inputs for maintaining upright posture come from visual, proprioceptive and vestibular systems and the functioning of all these decline with ageing. These age-related changes themselves do not cause a fall but they blunt the correcting reflexes after being disturbed, resulting in increased risk of falling.

Visual System- This is of utmost importance in preventing falling especially in elderly. Degenerative ocular changes like macular degeneration, cataract decrease visual acuity. Contrast sensitivity, depth perception and dark adaption decrease with increasing age. Increased sensitivity to glare also occurs in older people. In elderly people visually guided postural reflexes do not react quickly enough to prevent fall. Use of multifocal lenses also increases the risk.

Vestibular System- Vestibular system is impaired with increasing age due to loss of labyrinthine hair cells and nerve fibers. The vestibulo-cochlear reflex gain and dominant time contrast decreases with age. This decrease is minimal till 5th or 6th decade but quickens in later life.

Proprioceptive sensitivity loss occurs in the lower extremities with increasing age. Degenerative changes in the sensory and motor systems, the tendon receptors of lower extremities and in the musculo-skeletal system also occur in the elderly.

Age related changes in the CNS e.g., diminution in the neuronal cell density of the cerebral cortex and decrease in the Purkinje cells in the cerebellum with depletion of neurotransmitters (e.g., dopamine) within the basal ganglia diminishes the ability of postural control and hence increases the risk of falling.

Musculo-skeletal System:

1. Cross-sectional area of muscles decreases and fatty infiltration of muscles increases with increasing age resulting in declining of physical functions and debilities in older individuals.
2. Greater contraction of antagonistic muscles is common in elderly leading to delay in the onset of muscle activation resulting in increased risk of falling.
3. In older people, ability to rapidly develop joint torque with the use of muscles of lower extremities during postural disturbance declines resulting in compromised balance recovery leading to increased risk of falling.
4. Muscular strength in the legs and ankle declines with impaired joint flexibility resulting in increased risk of falling.

Aetiology / Risk factors

Fall is a symptom not a disease. In elderly, falls are rarely due to a single cause or risk factor, rather they are multifactorial. Usually they occur as a result of accumulation of multiple chronic disabilities. Falls are highly preventable, if the causative factors are properly searched out and eliminated. Diminished alertness, poor concentration, general fatigue, drug induced sedation and impaired situational judgement increases the risk of falling. Falls occur due to a complex interaction among the following:

1. Intrinsic factors
   a) Age related decline in function
   b) Disorders
   c) Drug effects.
2. Extrinsic factors
   a) Environmental hazards
   b) Foot wear.
3. Situational factors.

INTRINSIC FACTORS

Age related decline in function- Above described age related changes can impair systems involved in maintaining balance and stability. Correcting or righting reflexes in response to perturbations (e.g., stepping on to an uneven surface or being bumped into) become slow or blunted in elderly, resulting in an increased risk of falling.

Disorders contributing to risk of falling

1. Regulation of blood pressure- Blood pressure is disturbed in anemia, arrhythmias, COPD, dehydration, infections (pneumonia, sepsis), metabolic disorders (thyroid disorders, hypoglycemia, hyperglycemia with hyperosmolar dehydration), neurogenic inhibition after micturition, postural hypotension, post-prandial hypotension, valvular heart diseases, cardio-inhibitory carotid sinus hypersensitivity etc.
2. Central processing- disturbed in delirium, dementia.
3. Gait- disturbed in arthritis, foot deformities, muscle weakness.
4. Postural and neuro-motor function- disturbed in cerebellar degeneration, myelopathy (e.g., due to cervical or lumbar spondylosis), Parkinson's disease, peripheral neuropathy, stroke, vertebro-basilar insufficiency.
5. Proprioception- disturbed in peripheral neuropathy (e.g., DM, Vit. B12 deficiency).
6. Oto-laryngologic function- disturbed in acute labyrinthitis, benign paroxysmal positional vertigo (BPPV), hearing loss, Meniere's disease.
7. Vision- disturbed in cataract, glaucoma, macular degeneration (age related).

Drugs contributing to risk of falling

1. Aminoglycosides- direct vestibular damage.
2. Analgesics especially opiods- reduce alertness or slow central processing.
3. Anti-arrhythmics- impair cerebral perfusion.
4. Antihypertensives (especially vasodilators)- impair cerebral perfusion.
5. Antipsychotics- extra pyramidal syndromes, other anti-adrenergic effects.
6. Diuretics (especially when patients are dehydrated)- impair cerebral perfusion.
7. Loop diuretics (high dose)- direct vestibular damage.
8. Psychoactive drugs (especially anti-depressants, antipsychotics and benzodiazepines)- reduce alertness or slow central processing.

EXTRINSIC FACTORS

These are the factors outside the body or factors surrounding the elderly which increase the risk of falling.

Environmental hazards

1. Ground surface- uneven or slippery floors, loose carpet or low lying objects.
2. Lighting- poor lighting, glare from lamps.
3. Furniture- low-lying furniture or chairs without arm supports.

Footwear:

In elderly ill-fitting shoes increase risk of falling. Footwear should be tight-fitting, have flat soles, some ankle support and firm, non-skid mid soles.

SITUATIONAL FACTORS

These are those situations which increase the propensity of falling e.g.,

a) Rushing to the washroom, especially in the night, when lighting is poor and also person is sleepy or is not fully awake.
b) Rushing to answer telephone calls and not taking care of low lying objects or furniture.
c) Walking while talking on cellphone.
d) Any other type of multi-tasking when attention is diverted.

EVALUATION

Under reporting of falls is very common in elderly, hence they should be asked about falls, at least once in a year. Patients reporting single fall should be evaluated for balance and gait problems using Timed Up and Go (TUG) test. Patients reporting multiple falls need a more complete assessment of risk factors of falls. Here focus should be on identifying intrinsic, extrinsic or situational factors which can be reduced or eliminated by interventions targeted at them. Straight open-ended questions should be asked regarding most recent fall, followed by more specific questions such as when and where fall occurred and what were they doing at the time of fall. Same questions should also be asked to the witnesses. Questions regarding premonitory or associated symptoms (e.g., palpitations, shortness of breath, chest pain, vertigo, light-headedness etc.) and whether consciousness was lost or not should also be asked. Involvement of any obvious extrinsic or situational factor must be asked. Proper medical and drug history, history of use of alcohol is mandatory.

More obvious intrinsic causes of falls can be excluded by detailed physical examination. In cases of recent falls temperature should be taken to exclude fever as a cause. Cardio-vascular examinations give information regarding arrhythmias, orthostatic hypotension, valvular heart disease etc. Visual acuity should be evaluated with patients wearing their usual corrective lenses. Neck, spine and extremities (especially the legs and feet) should be evaluated for weakness, deformities, pain and limitation in range of motion. Detailed neurological examination for testing muscle strength and tone, sensations (including proprioception), coordination (including cerebellar function), stationary balance and gait should be done. Romberg's Test gives information regarding basic postural control and proprioceptive and vestibular system. High level balance function can be assessed by one-legged stance and tandem gait. If a patient can stand on one leg for 10 sec with his eyes open and has an accurate 3m (10 feet) tandem gait then any intrinsic postural control deficit is likely to be minimal.

FUNCTIONAL ASSESSMENT

Tests for clinical assessment of gait and balance include

Functional Reach (FR): Here one should measure the distance in inches which a standing person can reach or lean forward without stepping. If this distance is less than 6 inches in a 70 year old person then it strongly correlates with high fall risk.

Timed Up and Go (TUG) test: Here time in seconds should be recorded for an individual to stand up from a chair, walk 10 feet, turn around, come back and sit down on the chair. A score of 30 seconds or more indicates impaired mobility and assistance is required for him. Lower extremity weakness, imbalance while sitting or standing or an unsteady gait can be easily observed during the test.

Berg Balance Scale: In this test a person has to perform 14 tasks in 15 minutes of time. For every task marks allotted are from 0 (unable to perform) to 4 (normal performance). Tasks include ability to sit, stand, walk, turn in a complete circle, reach, lean over, turn and look over each shoulder and step. A total score of less than 45 is predictive of multiple falls.

Laboratory tests: CBC, blood sugar, renal function tests, serum electrolytes, TSH, Vit B12 level, Vit D level etc. X-ray chest and ECG or ECHO if needed.

MANAGEMENT

While managing, the primary objective should be to either prevent or reduce the number of future falls and fall related injuries and complications.

Persons reporting single fall and also not having any problem with balance or gait on TUG test should be given general information about reducing risk of falls like how to use drugs safely and how to reduce environmental hazards.

Persons having more than one fall or having problems during initial balance and gait testing should be sent for an exercise programme to a trained physiotherapist. The most effective exercise programmes to reduce fall risk are those that are tailored to the patient's deficit, are provided by a trained personnel, have a sufficient balance challenge component and are provided over long term (e.g., over 4 months). Strength training exercises, balance training exercises, endurance training exercises, flexibility improving exercises all reduce risk of falling and also improve general well-being.

Medical management- Drugs contributing risk of falls should be either stopped or reduced to the minimum possible dose. Patient should be assessed for disorders contributing to risk of falls and if found, proper treatment should be provided. Pain management, physical therapy and sometimes joint replacement may be beneficial for patients having arthritis.

Environmental management- Every effort should be made to reduce environmental hazards. For it home assessment and individualized recommendations should be given after home visit (e.g., removal of mats and rugs, installation of stair railing and improvement of night-time lighting etc.)

Persons having higher risk of falls should be properly taught and trained if they fall and cannot get up. Useful technique is that after fall one should turn from supine to prone position and then get on all four limbs, then crawl to a strong support surface and then try to pull up with its help.

When imbalance persists despite adequate therapies, a cane, a walker or a wheelchair should be recommended accordingly.

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Palliative Care Needs of a Patient with Dementia

*PRABHA ADHIKARI

Abstract:
People with dementia have a prolonged course of illness with need for physical, social, psychological and spiritual care and family members need probably more support than the patient. Although, there is no cure for dementia, palliative care delivered by a team improves quality of life of the patients and family members.

Keywords: *Dementia, elderly, pallative care.*

Currently, 46.8 million people are estimated to be living with dementia and by 2015, the figure is likely to rise to 131.5 million and it is alarming to note that 58% of them are living in developing countries. India itself is estimated to harbor nearly 4.1 million dementia cases. Since dementia has no cure, we have to have measures to endure it. Unlike cancer patients who need palliative Care for a few months people with dementia have a prolonged course of illness with need for physical, social, psychological and spiritual care and family members need probably more support than the patient. Although, there is no cure for dementia, palliative care delivered by a team improves quality of life of the patients and family members.

Stages of Dementia and Need for Palliative care keep changing according to the stage of the disease:

DEMENTIA TODAY CAN BE DIVIDED INTO 7 STAGES

Preclinical Stage –No symptoms

Very Mild-Simple forgetfulness –Disease limited to memory loss not interfering with life and patient is aware of the difficulty

Mild Dementia –Memory loss interfering with life and needing assistance for IADL such as medication management, finance, balancing accounts, not needing assistance for activities of daily living, occasional disorientation, loosing the way

Moderate: Needing assistance for simple IADL tasks that they used to do routinely like cooking, using a telephone, laundry, social withdrawl, wandering

Moderately Severe: Need help for ADL such as Bathing, dressing, apraxia, alexia, agraphia, severe visuo -spatial disorientation

Severe: Need help for toileting, difficulty for face recognition (agnosia), language grossly impaired(aphasia sensory and mild motor)

Very Severe: Speech totally impaired less than 6 words, swallowing difficulty, totally incontinent, bed ridden or wheel chair bound, inability to smile.

*Professor of Medicne and HOD, Yenepoya Medical College, Derlakatte, Mangalore

PHYSICAL SYMPTOMS THAT MAY NEED PALLIAITIVE CARE

1. Early Stages LADL Independent, IADL lost, May have psychological issues –depression, anxiety,need occupational therapist)

Symptoms	Solutions
Suddenly disappearing	Address tag with contact no,Electronic bands, gate or door alarm, locking the door covering the door with curtain, mobile phone
Unable to balance accounts and loss of funds	Need to take away financial control, however give small accounts to handle such as few Rs for auto etc, Just give invalid cheque books, bank instructions not to encash cheque without signature of the second signatory
Misplacing things	Remove as many furniture as possible so that there is very limited place to hide, keep everything open on a single table and have only a simple cupboard with labels for everything
Disorientation to time and date	Keep a big clock which is easily visible, Keep a table calender which can depict day and date
Disorientation to space	Label each room especially toilet /bath room. Have lights on in the bathroom at night
Falls	Avoid clutter, have grab bars, paint step edges with fluoueecent paint, toilet seat bar, ant-skid tiles
Incontinence	Fix toilet seat immediately next to door, Timed voiding, avoid coffee, tea, and limit liquids after 7 PM.Rule out UTI,BPH and prescribe oestrogen cream for atrophic vaginitis, incontinence pads, diapers
Dressing apraxia,right left confusion	Arrange dress in the sequence that needly to be worn, assist to start the process of wearing clothes and allow them to do it independent, to keep footwear properly the right and left
Bathing	Keep everything ready, start the process and allow them to bathe independently

2. Moderate Stage (Disease extending to other lobes,needing assistance for ADL, psychiatrist, psychologist, occupational therapist)

Wandering and getting lost	Use of gate alarm, Lock door, follow when going out
Unable recognize faces	Ask people around to speak and introduce
Poor pain localisaton	Pain AD scores
Apraxia for gait, lying on bed	Help by just guiding without oral instructions
Falls	Falls prevention interventions
Sensory aphasia /Motor aphasia	Help with words,speech therapist
Unable to write or read or comprehend a TV programme	Read aloud, copy writing, occupational therapy
Occasional choking	Feed appropriate sized, morsel, semi solid, finely ground
Delirium	Delirium workup
Hallucinations, delusions, fear	Use of antipsychotics, short acting sedatives
Disinhibition	Behavioural therapy,drugs

Final Stage (-all lobes of the brain affected -ADL affected and needs a full time carer to do ADL-Nursing needs)

Symptom	Solution
Eating difficulty	Avoid RT, finger feeding, use of feeding cup, bottles, position
Incontinence	Condom, catheter, diaper
Bed sore, Intertrigo	Skin care
Pain	Recognise pain by expression PAINAD scale
Infections	Pneumonia,pressure ulcer, urinary infection, cellulitis
Medications	Most medications are useless reduce or stop
Transfering	Take care of caregivers and the patient
Speech loss	Maintaining non verbal communication –speech therapist

Family Support: In addition, family members need constant Support and counselling. Care givers group and activities for the caregivers regularly to keep them motivated is important.

Legal Issues: At early stages of dementia, living will and advanced directives can be instituted in consultation with the legal and medical expert. Driving could be dangerous

FAQ on Indian Standards for TB Care

*ROHIT SARIN

Standard 1: Testing and screening for TB

1. Who should be Tested for TB ?
   Ans: people with cough >2 weeks, fever >2 weeks, significant weight loss, hemoptysis etc. and any abnormality in chest radiograph must be evaluated for TB. Children with persistent fever and/or cough >2 weeks, loss of weight / no weight gain, and/ or h/o contact with pulmonary TB should be evaluated for TB

2. Which is most common symptom of TB?
   Ans: The most common symptom of pulmonary TB is prolonged cough that lasts longer than the cough with most other acute lung infections. The evidence from India suggests that cough lasting > 2 weeks is a more sensitive indicator for TB

3. Who should be regularly screened for TB?
   Ans: People living with HIV (PLHIV), malnourished, diabetics, cancer patients, patients on immuno-suppressant or maintenance steroid therapy, should be regularly screened for signs and symptoms suggestive of TB.

4. What Is enhanced case finding?
   Ans: Enhanced case finding means maintaining a high index of suspicion for TB in all encounters with health provider, with proactive exclusion of TB using the appropriate combination of clinical queries, radiographic or microbiologic testing. It should be done in People living with HIV (PLHIV), malnourished, diabetics, cancer patients, patients on immunosuppressants, health care workers, slum dwellers, Prisoners etc.

Standard 2: Diagnostic Technology

5. Which are the diagnostic technologies available for diagnosis of TB
   Ans: a. Microbiological confirmation on sputum
   b. Chest Xray as screening tool
   c. CBNAAT : preferred first diagnostic test in children & PLHIV

6. What is the status of serological tests like Tuberculin Skin Test (TST) & Interferon Gamma Release Assay (IGRA) in diagnosis of TB?
   Ans: These are not recommended for the diagnosis of active tuberculosis. Standardized TST may be used as a complimentary test in children.

7. How many samples should be tested for diagnosis of TB?
   Ans: Two samples (a morning sample is better than a spot sample for detection of mycobacteria)

Standard 3: Testing for extra-pulmonary TB

8. What should be kept in mind when Extra pulmonary TB is suspected.
   Ans: Appropriate specimens from the presumed sites of involvement must be obtained for microscopy/culture/ CBNAAT/molecular test/histopathology examination and drug sensitivity testing (DST)

Standard 4: Diagnosis of HIV co-infection in TB and Diagnosis of DRTB

9. Which patients should be screened as presumptive MDR
   Ans: Patients who have failed treatment with first line drugs, paediatric non-responders, TB patients who are contacts of MDR-TB (or R resistance), TB patients who are found positive on any follow-up sputum smear examination during treatment with first line drugs, diagnosed TB patients with prior history of anti-TB treatment, TB patients with HIV co-infection and all presumptive TB cases among PLHIV.

10. What are the tests available for diagnosis of MDR-TB?
    Ans: a. Rapid molecular DST (as the first choice)-LPA or CBNAAT

*Director, Institute of TB and Respiratory Disease, New Delhi

b. Liquid / solid culture-DST (at least for R and H; and at least for Ofloxacin (O) and Kanamycin (K), if MDR). Liquid is preferred to solid culture.

11. Which patients should undergo diagnosis of Extensively Drug Resistant (XDR-TB)
Ans: On detection of Rifampicin and isoniazid resistance, patient must be offered sputum test for second line DST using quality assured phenotypic(Liquid or solid culture) or genotypic (CBNAAT or LPA)methods, wherever available

12. What is the prevalence of HIV in TB patients in India?
Ans: around 5%

13. Which TB patients should be offered counseling for HIV testing
Ans: All TB patients with active TB should be offered HIV counselling and testing.

14. What is the prevalence of MDR TB among New & Retreatment patients?

Ans: Prevalence of MDR-TB of 2-3% in new, untreated TB patients and around 15% in previously treated TB cases

Standard 5: Probable TB

15. What is probable TB?
Ans: Patients with symptoms suggestive of TB without microbiological confirmation (sputum smear microscopy, culture and molecular diagnosis), but with strong clinical and other evidence (e.g. X-ray, Fine Needle Aspiration Cytology (FNAC), histopathology) may be diagnosed as "Probable TB".

16. Which patients are likely to be treated for "Probable TB"?
Ans: The probable TB may be higher in Children, Patients with extra pulmonary TB or PLHIV.

Standard 6: Pediatric TB

17. What are the diagnostic tools in children who are not able to produce sputum?
Ans: In all children with presumptive intra-thoracic TB, microbiological confirmation should be sought through examination of respiratory specimens (e.g. sputum by expectoration, gastric aspirate, gastric lavage, induced sputum, broncho-alveolar lavage or other appropriate specimens) with a quality assured diagnostic test, preferably CB-NAAT, smear microscopy or culture.

18. Can children be treated for probable TB?
Ans: YES, the diagnosis of probable TB in children should be based on the presence of abnormalities consistent with TB on radiography, a history of exposure to pulmonary TB case, evidence of TB infection (positive TST(Tuberculin Skin Testing)) and clinical findings suggestive of TB

19. Can TST (Tuberculin Skin Testing) alone be used as diagnostic tool in TB?
Ans: NO, it may be used as a complimentary test in children, in combination with microbiological investigations, history of contact, radiology, and symptoms

20. What is the standard cutoff for TST in India?
Ans: IAP and RNTCP recommend 10mm as cut off

21. Do Serodiagnostic tests or IGRA have a role in diagnosis of TB in pediatric population?
Ans: Their role is same as in TST mentioned above.

Standard 7: Treatment with first line regimen

22. What is the recommended regimen for New TB Patients
Ans: The initial phase should consist of two months of Isoniazid (H), Rifampicin (R), Pyrazinamide (Z), and Ethambutol (E). The continuation phase should consist of three drugs (Isoniazid, Rifampicin and Ethambutol) given for at least four months

23. Under what conditions can the continuation phase be extended?
Ans: The duration of continuation phase may be extended by three to six months in special situations like Bone & Joint TB, Spinal TB with neurological involvement and neuro-tuberculosis. This can be done in consultation with the concerned specialist, relating to organ involved.

24. What is dosage frequency? Daily or Intermittent?
Ans: All patients should be given daily regimen under direct observation. However, the country programme may consider daily or intermittent regimen for treatment of TB depending on the available resources and operational considerations as both are effective provided all doses are directly observed. All paediatric TB patients and HIV associated TB patients should be given daily regimen under direct observation.

25. What are the recommended drug formulations?

Ans: Fixed dose combinations (FDCs) of four drugs (Isoniazid, Rifampicin, Pyrazinamide, and Ethambutol), three drugs (Isoniazid, Rifampicin and Ethambutol) and two drugs (Isoniazid and Rifampicin) are recommended.

26. What is the regimen recommended for previously treated patients?
Ans: After MDR-TB (or R resistance) is ruled out by a Quality Assured test, TB patients returning afterbeing lost to follow up, relapsing from their first treatment course or new TB patients failing with first treatment course may receive the retreatment regimen containing first-line drugs with an Intensive phase of three months and a continuation phase of five months: 2HREZS/1HREZ/5HRE

27. What are recommended weight bands for dosing of TB treatment?
Ans: The RNTCP guidelines outline dosing based on weight bands. Suggested weight bands for adults are: 30-39kg, 40-54kg, 55-70kg and >70kg. Recommended weight bands for paediatric patients are: 6-8kg, 9-12kg, 13-16kg, 17-20Kg, 21-24kg and 25-30kg. Drug formulations are available for matching these weight bands.

Standard 8: Monitoring the treatment Response

28. Should the Intensive phase of treatment be extended during the treatment?
Ans: The extension of the intensive phase is not recommended

29. How to assess response to treatment in Extra Pulmonary TB?
Ans: In patients with extra-pulmonary tuberculosis, the treatment response is best assessed clinically. The help of radiological and other relevant investigations may also be taken. The specialist in the concerned system should also be consulted wherever possible.

30. How to assess response to treatment in Children?
Ans: In children, who are unable to produce sputum, the response to treatment may be assessed clinically. The help of radiological and other relevant investigations may also be taken. If required , a pediatrician may be consulted.

31. What is the recommendation for monitoring during treatment?
Ans: International standards recommend that a sputum sample should be collected at the end of the intensive phase (two months) and at the end of treatment (six months) to monitor the success of therapy.

32. What is the recommendation for long term follow-up after treatment is completed?
Ans: After completion of treatment the patients should be followed up with clinical and/or sputum examination at the end of six and 12 months.

STANDARD 9: DRUG RESISTANT TB MANAGEMENT

33. What is the recommended treatment regimen for MDR-TB (R resistant) ?
Ans: The regimen chosen for MDR-TB may be standardized and/or based on microbiologically confirmed drug susceptibility patterns. At least four drugs (second line) to which the organisms are known or presumed to be susceptible, should be used. Most importantly the regimen should include at least Pyrazinamide, Ethambutol, a later generation Fluoroquinolone (such as high dose Levofloxacin) and a parenteral agent (such as Kanamycin or Amikacin), Ethionamide (or Prothionamide), and Cycloserine.

34. Which patients should be screened for Surgery in M/XDR-TB patients:
Ans: All patients of M/XDR-TB should be evaluated for surgery at the initiation of treatment and/or during follow up.

35. What is the treatment duration in MDR-TB patients ?
Ans: Total treatment should be given for at least 24 months in patients newly diagnosed with MDR-TB (i.e., not previously treated for MDR-TB) with recommended intensive phase of treatment being six to nine months and continuation phase of atleast 18 months after culture conversion. The total duration may be modified according to the patient's response to therapy.

36. When should the Second line DST be done during the treatment of MDR-TB ?
Ans: During the course of MDR-TB treatment, if the sputum culture is found to be positive at 6 months or later, the most recent culture isolate should be subjected to DST with second-line drugs (at least Ofloxacin and Kanamycin) to decide on further course of action.

37. What are the new drugs under consideration?

Ans: The new drugs e.g. Bedaquiline, Delaminid may be considered whenever scientific evidence for their efficacy and safety becomes available as per the national policy for newer antimicrobials.

Standard 10 : Addressing TB with HIV infection and other comorbid conditions

38. What is the treatment of HIV infected TB patients?
Ans: TB patients living with HIV infection should receive the same duration of TB treatment with daily regimen as HIV-negative TB patients.

39. How Anti-retroviral therapy and co-trimoxazole prophylactic therapy in HIV infected TB patients should be given?
Ans: Anti-retroviral therapy must be offered to all patients with HIV and TB as well as drug-resistant TB , irrespective of CD4 cell-count, as early as possible (within the first eight weeks) following initiation of anti-TB treatment.

40. Is there a need of Isoniazid preventive therapy (IPT) in HIV patients without active TB?
Ans: People living with HIV (PLHIV) should be screened for TB using four symptom complexes (current cough or fever or weight loss or night sweats) at HIV care settings and those with any of these symptoms should be evaluated for ruling out active TB. All asymptomatic patients in whom active TB is ruled out, Isoniazid Preventive Therapy (IPT) should be offered to them for six months .

Standard 11 : Treatment adherence

41. How to promote adherence?
Ans: Trained treatment supporter which may include identification and training of a treatment supporter (for tuberculosis and, if appropriate, for HIV, Diabetes Mellitus etc.) who is acceptable, accessible and accountable to the patient and to the health system.

42. What are newer modalities for promoting treatment adherence?
Ans: Use of SMS reminders and call center linkages between patients, providers and pharmacists, use of ICT to promote treatment literacy and adherence.

Standard 12 : Public health responsibility

43. What is the public health responsibility of a private/Govt. physician treating tuberculosis?
Ans: The practitioner must not only diagnose as per standard of care and prescribe an appropriate regimen, but when necessary, also utilize local public health services / community health services, and other agencies including NGOs to assess the adherence of the patient and to address poor adherence when it occurs

Standard 13: Notification of TB cases

44. Since when is the TB a notifiable disease in India and to whom the cases should be notified?
Ans: Since 7th May'2012 and the cases should be notified to District Nodal officer

45. What is the name of electronic notification system of TB in India?
Ans: NIKSHAY

Standard 14 : Maintain records for all TB patients

46. What records are to be maintained for TB patients?
Ans: A written record of all medications given, bacteriologic response, adverse reactions and clinical outcome should be maintained for all patients. Minimum records also be maintained by Private sector.

47. Can the anti Tb drugs be bought over the counter without prescription?
Ans: The Government of India through a gazette notification has made all anti-TB drugs under schedule H1. These drugs should not be dispensed without a valid prescription from a qualified practitioner. A copy of the prescription should be maintained and details of the patient to be recorded by the chemist and should be made available for verification by the responsible public health authorities

Standard 15: Contact investigation

48. Which contacts of TB patients be prioritized for screening of TB?
Ans: The highest priority contacts for active screening are: Persons with symptoms suggestive of tuberculosis, Children aged less than six years , Contacts with known or suspected immune-compromise, particularly HIV infection, Contacts with Diabetes Mellitus , other higher risks including pregnancy, smokers and alcoholics etc. and Contacts of patients with DR-TB.

Standard 16: Isoniazid Prophylactic therapy

49. Who should be considered for IPT?

Ans: Children less than 6 years of age who are close contacts of a TB patient, after excluding active TB, should be treated with isoniazid for a minimum period of six months and should be closely monitored for TB symptoms

Standard 17: Airborne infection control

50. What measures should be implemented for Air borne infection control measures in facilities treating TB?
Ans: Administrative, environmental and personal protective measures should be implemented in all health care facilities as per national airborne infection control guidelines

51. Which is the most cost effective infection control measure?
Ans: Administrative measures

Standard 18: Quality assurance systems

52. What is covered under Quality assurance?
Ans: All diagnostic tests used for diagnosis and all anti-TB drugs used in the country are subjected to stringent quality assurance mechanisms at all levels (from manufacturer to patients)

Standard 20 : Health education

53. Which patients should be given counseling?
Ans: Every TB symptomatic should be properly counseled by the healthcare providers. Every visit of the patient to the healthcare provider and visit of the health worker to the patient's home should be utilized for health education.

Standard 21: Death audit among TB patients

54. Competent Authorities should audit which TB deaths?
Ans: Every death among TB patients should be audited by a competent authority to ascertain preventable causes.

Standard 22: Information on TB prevention and care seeking

55. Which group of people should receive information on Tb Prevention?
Ans: All individuals especially women, children, elderly, differently abled, other vulnerable groups and those at increased risk should receive information related to TB prevention and care seeking.

Standard 23 : Free and quality services

56. Which patients should receive free and quality services?
Ans: All patients

Standard 24 : Respect, confidentiality and sensitivity

57. Health system should be sensitive to which group of patients?
Ans: All people seeking or receiving care for TB should be received with dignity and managed with promptness, confidentiality and **gender** sensitivity

Standard 25 : Care and support through social welfare programmes

58. Which social health programmes can help in supporting the TB patients?
Ans: Social welfare support systems such as RSBY, nutritional support programmes, national rural employment guarantee scheme etc. to mitigate out of pocket expenses such as transport and wage loss incurred by people affected by TB and post TB sequelle.

Standard 26: Addressing counseling and other needs

59. To whom and at what interval should counseling be provided?
Ans: Persons affected by TB and their family members should be counselled at every opportunity, to address information gaps and to enable informed decision-making.

60. What issues should be addressed during counseling?
Ans: Counseling should address issues such as healthcare, physical, financial, psycho-social and nutritional needs.

Management of Diabetes in Elderly

*JUGAL KISHOR SHARMA

Abstract:
Older adults are at high risk for the development of type 2 diabetes due to the combined effects of increasing insulin resistance and impaired pancreatic islet function with ageing. The overall goals of diabetes management in older adults are like those in younger adults and include management of both hyperglycemia and risk factors. In frail older patients with diabetes, avoidance of hypoglycemia, hypotension, and drug interactions due to polypharmacy are of even greater concern than in younger patients with diabetes. "Start low and go slow" is a good principle to follow when starting any new medications in an older adult.

Keywords: *Diabetes in elderly, glycemic targets, hypoglycemic.*

INTRODUCTION

One-third of older adults with diabetes are undiagnosed[1] and linked to higher mortality, reduced functional status, and increased risk of institutionalisation.[2] They are at substantial risk for both acute and chronic microvascular and macrovascular complications of the disease. Prevalence of diabetes will double in the next 20 years, in part due to the ageing of the population.[3]

Older adults are at high risk for the development of type 2 diabetes due to the combined effects of increasing insulin resistance and impaired pancreatic islet function with ageing. Age-related insulin resistance appears to be primarily associated with adiposity, sarcopenia, and physical inactivity.[4]

Those aged >75 years also have double the rate of emergency department visits for hypoglycemia than the general population with diabetes.[5]

TREATMENT TARGETS

The overall goals of diabetes management in older adults are like those in younger adults and include management of both hyperglycemia and risk factors. Older adults with diabetes are a heterogeneous population that includes persons residing independently in communities, in assisted care facilities, or in nursing homes. They can be fit and healthy or frail with many comorbidities and functional disabilities. Thus, management of diabetes in older adults should be individualised, considering these variables.

In frail older patients with diabetes, avoidance of hypoglycemia, hypotension, and drug interactions due to polypharmacy are of even greater concern than in younger patients with diabetes.[6] Also, management of coexisting medical conditions is important, as it influences their ability to perform self-management.

Glycemic targets

Goals for glycemic control, as well as risk factor management, should be based upon the individual's overall health and projected period of survival since the risk of complications is duration-dependent.

An A1C goal of <7.5% should be considered in medication-treated patients. Fasting and preprandial glucose should be between 140 and 150 mg/dL. Higher A1C <8.0 %, fasting and preprandial glucose between 160 and 170 mg/dl may be considered) in medication-treated frail older adults with medical and functional comorbidities and in those whose life expectancy is less than ten years. For the very old may be even higher A1C <8.5 % and should include efforts to preserve the quality of life and avoid hypoglycemia and related complications. An A1C of 8.5 percent equates to an estimated average glucose of 200 mg/dl.

Watch for Hypoglycemia

The vulnerability to hypoglycemia is substantially increased in older adults.[7,8] Older adults may have more neuroglycopenic manifestations of hypoglycemia (dizziness,

*Medical Director & Senior Consultant, Central Delhi Diabetes Centre, New Delhi

weakness, delirium, confusion) compared with adrenergic manifestations (tremors, sweating), resulting in the delayed recognition of hypoglycemia.[9] These neuroglycopenic symptoms may be missed or misconstrued as a primary neurologic disease (such as a transient ischemic attack), leading to inappropriate reporting of hypoglycemic episodes by the patients.

Hypoglycemic episodes in older individuals may also increase the risk of adverse cardiovascular events and cardiac autonomic dysfunction.[10,11] Also, severe hypoglycemia requiring hospitalisation has been associated with an increased risk of developing dementia that is higher in patients with repeated episodes.[12,13]

MANAGMENT OF HYPERGLYCEMIA

The initial treatment of type 2 diabetes in older patients is like that in younger patients and includes instruction on nutrition, physical activity, optimising metabolic control, and preventing complications.

Lifestyle modification: All older patients with diabetes should receive counselling about lifestyle modification (exercise, diet, behavioural modification, and weight reduction [if needed]).

Physical activity: Physical activity benefits people of all ages and may decrease all-cause morbidity and increase lifespan. Older adults should be encouraged to be as active as their functional status will allow. Functionally independent adults should be encouraged to perform 30 minutes of moderate-intensity aerobic activity (e.g., brisk walking) at least five days per week. Patients with deconditioning at risk for falls should be referred to an exercise physiologist and physical therapist for muscle strengthening and balance training in a safe environment.

Medical nutrition therapy: MNT is the process by which the nutrition prescription is tailored for people with diabetes based upon medical, lifestyle, and personal factors and is an integral component of diabetes management and diabetes self-management education. Thus, most older adults with diabetes should be considered for a medical nutrition evaluation.

Drug therapy: For older patients who do not have contraindications, metformin as initial therapy along with lifestyle modification is advised. Fit older adults may be treated similarly as younger adults with the initiation of metformin at the time of diabetes diagnosis, even if the presenting A1C is below the individualised medication-treated target.

Insulin can also be considered as initial therapy for all patients with type 2 diabetes, particularly patients presenting with A1C >9 percent, fasting plasma glucose >250 mg/dL, random glucose consistently >300 mg/dl or ketonuria.

In general, oral and injectable agents with low risk of hypoglycemia are preferred in older adults.

Pharmacologic therapy must be individualised based on patient abilities and comorbidities. “Start low and go slow” is a good principle to follow when starting any new medications in an older adult.

Metformin: For most older adults, metformin is used as initial therapy. Metformin is an attractive agent to use in older adults due to a low risk of hypoglycemia. An eGFR >30 mL/min is a safe level of kidney function for the use of metformin. For a patient with an eGFR ≥60 mL/min, we prescribe full dose. For patients with an eGFR between 30 and 60 mL/min, we reduce the metformin dose by half (no more than 1000 mg per day). Weight loss and gastrointestinal side effects may be limiting factors in older adults taking metformin. Therefore, begin with 500 mg daily and increase the dose slowly over several weeks to minimise GI side effects. Renal function (measurement of serum creatinine and eGFR) should be monitored every three to six months, rather than annually.

Sulfonylureas: For patients with contraindications and intolerance to metformin, we suggest a short-acting sulfonylurea (e.g., glipizide) for initial therapy. The choice of sulfonylurea balances glucose-lowering efficacy, universal local availability, and low cost with the risk of hypoglycemia and weight gain. Sulfonylurea drugs are usually well tolerated. Hypoglycemia is the most common side effect and is more common with long-acting sulfonylurea drugs (e.g., glimepiride), especially in older adults, in whom severe, prolonged hypoglycemia can develop. Thus, we avoid the use of long-acting sulfonylureas in older adults. We prefer to use a short-acting sulfonylurea such as glipizide. A typical starting dose is 2.5 mg of glipizide taken 30 minutes before breakfast.

Other drugs: Other medicines that are sometimes used as initial therapy in older adults include repaglinide, DPP-4 inhibitors, or insulin. We tend not to use pioglitazone in older adults due the risks of fluid retention, weight gain, and increased risks of heart failure, macular oedema, and osteoporotic fracture

- Repaglinide and nateglinide are short-acting glucose-lowering drugs that act similarly to the sulfonylureas and have similar or slightly less efficacy in decreasing glycemia. They require more frequent administrations with meals than sulfonylureas and are more expensive. Meglitinides are pharmacologically distinct from sulfonylureas and may be used in patients who have an

allergy to sulfonylurea medications. They have a similar risk for weight gain as sulfonylureas but possibly less risk of hypoglycaemia.[14]

- Unlike nateglinide, repaglinide is principally metabolised by the liver, with less than 10 percent renally excreted. Dose adjustments with repaglinide do not appear to be necessary for patients with renal insufficiency. Also, repaglinide is somewhat more efficient in lowering A1C than nateglinide. Thus, repaglinide could be considered as initial therapy in a patient with chronic kidney disease who is intolerant of metformin and sulfonylureas.
- DPP-4 inhibitors are once-a-day oral agents with no risk of hypoglycemia and are weight-neutral when used as monotherapy, and therefore may be attractive agents to use in older adults. Since they are relatively weak agents and usually lower A1C levels by only 0.6 percent, DPP-4 inhibitors should only be used as monotherapy when the A1C level is relatively close to the goal level.
  The dose of DPP-4 inhibitors (except for linagliptin) should be adjusted in patients with renal insufficiency.
- Insulin can also be considered as first-line therapy for all patients with type 2 diabetes, particularly patients presenting with symptomatic or poorly controlled diabetes (A1C >9 %), fasting plasma glucose >250 mg/dL, random glucose consistently >300 mg/dL, or ketonuria) or in patients with whom it 's hard to distinguish type 1 from type 2 diabetes.

PERSISTENT HYPERGLYCEMIA MANAGEMENT

- After a successful initial response to oral therapy, many patients fail to maintain target glycated haemoglobin (A1C) levels. If glycemic goals are not met with a single agent, the older patient should be evaluated for contributing causes, such as difficulty adhering to the medication, side effects, or poor understanding of the nutrition plan.[7,15] If glycemic control is still above the individualized target, an additional agent is needed. In older patients who require more than one agent, pill-dosing dispensers may help improve adherence. As an alternative, family members or caregivers may be required to help administer medication.
- For patients who fail initial therapy, there are several agents that are available and can be used with metformin or a sulfonylurea. The options are similar in older and younger patients
- The therapeutic options for patients with persistent hyperglycemia (above-individualised target) who are taking metformin or a sulfonylurea include adding a second oral or injectable agent, including insulin, or switching to insulin.
- For older patients who have persistent hyperglycemia with lifestyle intervention and metformin, add a short-acting sulfonylurea such as glipizide. Alternative options include adding basal insulin (preferred in those with A1C >9% or with persistent symptomatic hyperglycemia), repaglinide, a dipeptidyl peptidase 4 (DPP-4) inhibitor, or a glucagon-like peptide 1 (GLP-1) receptor agonist. Pioglitazone should be avoided due to the risks of fluid retention, weight gain, and increased risks of heart failure, macular oedema, and osteoporotic fracture.
- For patients having persistent hyperglycaemia (A1C >8.5 %) with lifestyle intervention and sulfonylurea (contraindications to metformin), switch to basal insulin.
- Insulin should be carefully titrated to avoid hypoglycemia and related complications. For such patients with A1C above glycemic targets but <8.5 %, there are several agents that are available and can be used with a sulfonylurea (as an alternative to switching to basal insulin). Options include DPP-4 inhibitors, GLP-1 agonists, Sodium-glucose cotransporter 2 (SGLT2) inhibitors, and alpha-glucosidase inhibitors. These medications have advantages and disadvantages.
- The choice of therapy should be individualised based on patient characteristics, preferences, and costs.
- For patients who do not achieve A1C goals with two agents (e.g., metformin and sulfonylurea), we suggest starting or intensifying insulin therapy. In patients on sulfonylureas and metformin who are starting insulin therapy, sulfonylureas are tapered and discontinued, while metformin is continued. Another option is two oral agents and a GLP-1 receptor agonist.
- It is reasonable to try a GLP-1 agonist before starting insulin in patients who are close to glycemic goals, who prefer not to start insulin, and in whom weight loss or avoidance of hypoglycemia is a primary consideration. Three oral agents (e.g., metformin, sulfonylurea, and a DPP-4 inhibitor) can be considered in patients with A1C values that are not too far from goal (A1C ≤8.5 percent). However, this option is more expensive and contributes to the problem of polypharmacy in older adults.
- Insulin is sometimes underutilised in older adults because of fear (by the clinician, patient, or family) that it is too complicated or dangerous. With the availability of long-acting insulins, it has become easier to use once-daily long-acting insulin as monotherapy or add once-daily insulin to oral hypoglycemic medications in older patients who have suboptimal glycemic control. In many older

patients, quality of life improves substantially it may be unclear to the reader what **substantially** is modifying. Consider moving the modifier when they take one or two daily doses of intermediate or long-acting insulin.

- Before beginning insulin therapy, it is important to evaluate whether the patient is physically and cognitively capable of using an insulin pen or drawing up and giving the appropriate dose of insulin (using syringes and vials), monitoring blood glucose, and recognising and treating hypoglycemia. For older patients taking a fixed daily dose of insulin and who can give the insulin shot but not of drawing it up, a pharmacist or family member may prepare a week's supply of insulin in syringes and leave them in the refrigerator. Such a plan may allow an older patient to remain living independently at home.
- Insulin should be carefully titrated to avoid hypoglycemia and related complications.

Start with bedtime intermediate-acting insulin or bedtime or morning long-acting insulin (10 units or 0.2 units per kg). The dose can be adjusted once weekly to reach the target fasting blood sugar. Insulin metabolism is altered in patients with chronic renal failure so that less insulin is needed when the glomerular filtration rate (GFR) is below 50 mL/min.

Cardiovascular risk reduction — Older adults with diabetes are at risk of developing a similar spectrum of macrovascular complications as their younger counterparts with diabetes. However, their absolute risk for CVD is much higher than younger adults. Older adults with diabetes suffer excess morbidity and mortality compared with older individuals without diabetes.[16]

As in younger patients with type 2 diabetes, risk reduction should be focused on the following areas:

Smoking cessation — Smoking in patients with diabetes mellitus is an independent risk factor for all-cause mortality, due largely to CVD. Therefore, smoking cessation should be vigorously promoted.

Management of Hypertension — lowering blood pressure from very high levels (e.g., systolic blood pressure [SBP] 170 mmHg) to moderate targets (e.g., SBP 150 mmHg) reduces cardiovascular risk in older adults with diabetes.[17]

Treatment of Dyslipidaemia — Since older patients are at higher risk, absolute risk reductions with statin therapy would be greater in older patients. Cardiovascular prevention with statins, especially secondary benefit, emerges quickly (within 1–2 years), suggesting that statins may be indicated in nearly all older adults with diabetes except those with very limited life expectancy.

Aspirin — The value of daily aspirin therapy in patients with known macrovascular disease (secondary prevention) is widely accepted.

Exercise — Exercise is beneficial to help maintain physical function, reduce cardiac risk, and improve insulin sensitivity in patients with diabetes. In older adults, exercise also improves body composition and arthritic pain, reduces falls and depression, increases strength and balance, enhances the quality of life, and improves survival.[18-21]

GLYCEMIA MONITORING — Monitoring is usually necessary to achieve glycemic goals. Monitor glycated haemoglobin (A1C) twice yearly in older patients who are meeting treatment goals and who have stable glycemic control, and quarterly in patients whose therapy has changed or who are not meeting glycemic goals.

Blood glucose concentrations can also be monitored at home by the patient or a caregiver. Self-monitoring of blood glucose (SMBG) can be considered in select older patients, depending upon medications and functional and cognitive abilities.[7,15]

SCREENING FOR MICROVASCULAR COMPLICATIONS — Older adults with diabetes are at risk of developing a similar spectrum of microvascular complications as their younger counterparts with diabetes. Retinopathy, nephropathy, and foot problems are all important complications of diabetes mellitus in older patients.

Retinopathy — The prevalence of retinopathy increases progressively with increasing duration of diabetes. The complete ophthalmologic examination should be performed by a qualified ophthalmologist or optometrist at the time of diagnosis and at least yearly after that. The purpose is to screen not only for diabetic retinopathy but also for cataracts and glaucoma, which are more common in older diabetic compared with nondiabetic subjects.[22]

Nephropathy — The availability of effective therapy for diabetic nephropathy with angiotensin-converting enzyme (ACE) inhibitors has led to the recommendation that all patients with diabetes be screened for increased urinary albumin excretion annually.

Foot problems — Foot problems are an important cause of morbidity in patients with diabetes, and the risk of them is much higher in older patients. Both vascular and neurologic disease contribute to foot lesions.[23,24]

We recommend that older diabetic patients have their feet examined at every visit; this examination should include an assessment of the patient's ability to see and reach his or her feet and inquiry about other family members or friends who could be trained to do routine foot inspections. Visits to a podiatrist on a regular basis should also be considered. A detailed neurologic examination and assessment for peripheral artery disease should be performed at least yearly.

ISSUES CONSIDERED IN TREATMENT RECOMMENDATIONS FOR ELDERLY

Comorbidities and geriatric syndromes: Diabetes is associated with increased risk of multiple coexisting medical conditions in older adults. In addition to the classic cardiovascular and microvascular diseases, a group of conditions termed geriatric syndromes, described below, also occur at higher frequency in older adults with diabetes and may affect self-care abilities and health outcomes including quality of life.[25]

Cognitive dysfunction: Alzheimer's-type and multi-infarct dementia are approximately twice as likely to occur in those with diabetes compared with age-matched nondiabetic control subjects.[26]

Hypoglycemia is linked to cognitive dysfunction in a bidirectional fashion: cognitive impairment increases the subsequent risk of hypoglycemia,[27] and a history of severe hypoglycemia is linked to the incidence of dementia.[28]

Functional impairment: Ageing and diabetes are both risk factors for functional disability. The aetiology of functional impairment in diabetes may include interaction between coexisting medical conditions, peripheral neuropathy, vision and hearing difficulty, and gait and balance problems.

Other medical conditions that commonly accompany diabetes such as coronary artery disease, obesity, degenerative joint disease, stroke, depression, and visual impairment also negatively impact physical activity and functionality.[29]

Falls and fractures: Women with diabetes have a higher risk of hip and proximal humeral fractures**.** Assessment of fall risks and functional capacity should be done periodically in older adults.[30]

Polypharmacy: Elderly with diabetes are at high risk of polypharmacy, increasing the risk of drug side effects and drug-to-drug interactions.

Depression: Elderly with diabetes have a high prevalence of depression.[31]

Vision and hearing impairment: Sensory impairments should be considered when educating older adults and supporting their self-care

Other common medical conditions: Persistent pain from neuropathy or other causes or its inadequate treatment is associated with adverse outcomes in elderly including functional impairment, falls, slow rehabilitation, depression and anxiety, decreased socialisation, sleep and appetite disturbances, and higher health care costs and utilisation.[2] Urinary incontinence is common in older patients, especially women, with diabetes.

Recommendations should consider the patient's culture, preferences, and personal goals and abilities. Overweight and obesity are prevalent among older adults. Sarcopenia may occur in both over- and underweight older adults. Obesity exacerbates the decline in physical function due to ageing and increases the risk of frailty.[32]

Physical activity and fitness: Muscle mass and strength decline with age, and these decrements may be exacerbated by diabetes complications, comorbidities, and periods of hospitalisation in older adults with diabetes. People with diabetes of longer duration and those with higher A1C have lower muscle strength per unit of muscle mass than BMI- and age-matched people without diabetes and then those whose disease is of shorter duration or under better glycaemic control.[33] Older adults with diabetes who are otherwise healthy and functional should be encouraged to exercise to targets recommended for all adults with diabetes.[34]

Age-specific aspects of pharmacotherapy: Older patients are at increased risk for adverse drug events from most medications due to age-related changes in pharmacokinetics (reduced renal elimination) and pharmacodynamics (increased sensitivity to certain medications) affecting drug disposition. These changes may translate into increased risk for hypoglycemia, the potential need for reduced doses of certain medications, and attention to renal function to minimise side effects.[35,36]

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GSICON 2016

10-11 December, VP Chest Institute, New Delhi

GSICON 2016 started with the ceremonial lamp lighting & the welcome address from our President Dr. S. N. Gaur followed by report on activities of GSI by Dr. O. P. Sharma.

Our Chief Guest Dr. Harsh Vardhan Hon'ble Minister for Science & Technology and Earth Sciences had to travel suddenly for some important task hence we missed his blessings & words of wisdom.

Our Chief Guest Dr. Harsh Vardhan Hon'ble Minister for Science & Technology and Earth Sciences had to travel suddenly for some important task hence we missed his blessings & words of wisdom.






Dr. S. S. Agarwal presented the Appreciation awards to Dr. Kaushik Ranjan Das, Dr. Anand P. Ambali, Dr. Anita Basavraj, Dr. Sanjay Bajaj, Dr. Anand Kamat, Dr. B. B. Gupta, Dr. Garima Handa & Dr. D. P. Manchanda.
Some of the awardees could not make hence their awards were collected by their colleagues.
We all enjoyed a fruitful scientific feast, update on various topics & had exchange of ideas on various medical & health issues of elderly.

We had 11 orations as given below:

Presidential Oration - 2016 Dr. S. N. Gaur
Dr. J. J. Rao Oration Dr. M. S. Sridhar
Dr. B. C. Bansal & Dr. C. Prakash Oration Dr. Anand P. Ambali
Bamacharan – Hemlata Dhar Oration Dr. B. K. Mondal
L. C. Manoria Memorial Oration Dr. Prabha Adhikari
Dr. G. S. Sainani Oration Dr. J. K. Sharma
Dr. Satish Gulati Bharatji Gulati Oration Dr. Ashima Nehra
Mithilesh Memorial Lecture Dr. A. K. Singh
Dr. Raghunandan Lal Oration Dr. M. V. Jali
Dr. B. N. Srivastava & Saran Dulari Oration
Dr. R. M. Sundrani
Rekitts Geriatric Oration Dr. N. S. Neki

The following 10 members were conferred upon Fellowship of GSI:-

Dr. Sanjay Kambar
Dr. A. K. Manchanda
Dr. Padma Mallika Khanna Hazra
Dr. Prabha Adhikari
Dr. R. M. Sundrani
Dr. Nikhil Sarangdhar
Dr. Kauser Usman
Dr. Monica Gupta
Brig. Dr. S. K. Dhingra
Dr. S. C. Sharma

The faculty worked hard in preparing their lectures with latest data's which will help the care givers to serve their elderly patients better.


13th International Conference on Geriatrics & Gerontology
INAUGURA
Dr.
Vardhan
Geriatrics & Gerontology
10th-11th December, 2016

The org. committee worked hard to take care of various logistics to help the delegates attend the program in a comfortable way.

The young scientists from Geriatrics & Gerontology presented their papers of the excellent worked being done by them. The winners in this section were:-

First - Ms. Shivani Sharma - AIIMS, New Delhi

Second - Ms. Divya Latna, Tirupati

Third - Ms. Ujjawala V., Tirupati

They were felicitated in the valedictory session.

The special issue of IJGC brought out on this occasion contained various orations, guest lectures & other lectures along with all the abstracts of the free papers presented in the conference. Some of the orations & guest lectures were received by editorial board after the due date & hence could not find berth in this issue. They will however be published in the next issue of IJGC (Jan - Apr 2017)

Some of you travelled a long distance & braved the cold & pollution of Delhi. The inconvenience caused to you is regretted.

We are grateful to Dr. Abraham M. Palache & Dr. B. K. Mondal to travel all the way from Netherlands & United Kingdom.

We have received an invitation from Dr. M. S. Sridhar & his team for GSICON 2017 on 01 & 02 October 2017 at Tirupati. I am sure GSICON 2017 also will be a memorable event.

I am grateful to Dr. P. S. Shankar & Dr. S. N. Gaur for their guidance & support. I am highly obliged to Dr. J. K. Sharma, Dr. Vivek Handa, Dr. Garima Handa & Dr. B. B. Gupta for their tireless working. I am thankful to Dr. Anand P. Ambali for his support in free papers.

The staff of VPCI deserves a big applause.

LONG LIVE GSI

News from Karnataka

BELGAVI CHAPTER

KLES DR KORE HOSPITAL CALLS ON "WORLD ELDER'S DAY-2016."

Theme: 1st October - Take a Stand Against Ageism

International Day for Elderly People 2016 was celebrated on Saturday, on 1st of October.

The United Nations General Assembly called to observe elder's day since 1991 as World Elder's Day. This is to give awareness to the people about issues which affect the seniors as well as to appreciate their contribution towards the society.

People are getting encouraged about their responsibilities towards the lives of elder people to make their life better and happy by analysing all the problems affecting the life of seniors. This year the theme is "Take a Stand Against Ageism". Indian ageing population is growing at the rate of nearly 12% of the total population of the country. Elders need unique to rural, urban and men to woman population. It is time to devote concern to their needs in respect to their health.

The KLES Dr Prabhakar Kore Hospital initiated the special outpatient care (Geriatric) almost a decade ago and two years ago, initiate first Adult Vaccine Advocacy Centre to give knowledge about preventive care through pneumococcal vaccine and flu shots. These are routinely

practised worldwide to prevent pneumococcal infections in elderly. The hospital has called on the public to avail a free check up at the hospital's Geriatric OPD On October 1, 2016, Dr M V Jali, Medical Director and former president of Geriatric Society of India, (New Delhi) informed.

VIJAYAPURA CHAPTER

HEALTH CHECK UP CAMP 16-18 JAN. 2016

The BLDE University jointly with NPHCE, NHM, Zilla Panchayat, DH & FW, NCD, DHO Vijayapura district, organized FREE HEALTH CHECK UP CAMP for senior citizens from January 16 to 18, 2016 between 10.00am to 04.00pm at Geriatric Clinic of its medical college hospital. Dr Anand P. Ambali, consultant geriatric physician along with his team examined the senior citizens. Diabetes was detected for first time in two patients and hypertension in three patients. Dr Jayanth, Dr. Shruthi, ECG staffers Mr Sriahsail, Mr Datttatreya, Ms Jostna, and Nursing staffers Mr Hanumanth, Mr Ramesh and Mrs Shivakantha were part of the team. Support and blessings were received from Dr M S Mulimani, HOD Medicine BLDE University Medical College Hospital.

A total of 80 senior citizens attended the camp. Investigations like Complete blood count, Random Blood Sugar, Electrocardiography were carried out free of cost. Drugs were provided by IPCA and Guddodgi pharmaceuticals.

– report by Dr. Anand P Ambali.

Congratulations

Dr Anand P. Ambali, for presenting a paper "A decade of health care for senior citizens and our experiences" at International conference on "Services to the Elderly" held on 23 and 24 February, 2017 at ITC, Hyderabad organised by Heritage foundation. Dr Shanti, Neurophysician from Canada chaired the session.

News From West Bengal

BARRACKPORE BRANCH

WORLD ELDERS DAY CELEBRATIONS ON 1ST OCT. 2016

World Elders Day was celebrated on 1st October 2016 at CMDA Nagar, Barrackpore, North 24 parganas, West Bengal; by organising "ELDER'S FAIR " from 9.30 am. to 2.30 pm & "Indoor game competition, prize distribution & short cultural session" from 5.30 pm to 8.00 pm by Geriatric Society of India West Bengal Branch & Barrackpore Elderly Care Society. About 400 People of different age groups (including senior citizens) attended & participated the unique programme.

The main Activities were:

Presentation of nosegay of ROSE & gifts with respect. There was Memory screening by ARDSI Kolkata chapter (40 nos.) and Audiometry & display of hearing aid by SUSHRUTA. Vaccine were given to 40 elderly (pneumococcal & influenza) by Lupin. Physiotherapy & assisting devices were given by Pulse Devices, Belghoria.

Body donation was promised by 7 persons. Advise on Diet & Nutriton in elderly was given by Nutritionist Sankar Prasad Das. New India Assurance Co., Lupin, Ajanta, Cipla, Bhatpara Eye Hospital, Rajat Chatterjee helped in various blood tests, ECG and BMD tests.

Four daughters in law & three grand daughters were awarded for their positive role in their elder's care, Shri Kamal Chatterjee, chartered Accountant was felicitated.

The meeting was chaired by Sri Ashoke Kumar Roy and attended by Chief Guest Brahmmachari Mural Bhai (Ramkrishna Sangha, Adyapeath). Following persons graced the occasion as Special guest: Shri Madhusudan Ghosh, MLA, Noapara electoral constituency; Sri Uttam Das, Honorable Chairman, Barrackpore Municipality ; Sri. Nirmal Kar (Upa Prodhan , Mohampur Gram ponchayet); Shri. K.P. Bhattacharjee(CMIG & VNM), Dr. S.K.Gope (Ex-President, IMA Bengal Br.); Dr. Anadi Nath Biswas (Hon. Sec. IMA Titagah br.): Dr. R.N. Maiti (GSI), Sri. Dayamay Biswas (President CPDR), Sri. Sunit Gope (President, National Human rights commisson).

Following resolution has been adopted after discussion

(1) Since it is observed that helper (servant) for household chores are now scarce in the context of upliftment of economic status of people around & since as a result of better economic status, care giver in a service centre (including old age homes) will be costly and unavailable as well & since due lack of /fragile bonding within a family and high living cost in a service centre, elderly (specially disabled/partially disabled) will fall in tremendous distress in near future , hence it is opined that "maintaining stable family bonding is the most prominent tool for graceful ageing".

Therefore all concerned, specially younger people are requested to work for maintaining firm bonding in families for giving peace of mind to their elder's and also for the sake of their secured old age. State govt. will be requested to strengthen awareness about elder's situation & family bonding building by the way of introducing related chapter in text books & mass publicity be made by using mass media & other possible ways.

(2) State Govt. is requested to implement provisions of Rule 23(c) of West Bengal maintenance & welfare of parent & senior citizens rule2008, by the way of appropriate legislation/executive order to police administration regarding protection of life & property of senior citizens – which is a burning issue in present situation.(no order is known till date).

(3) Since it is assumed that people are almost unaware about the provisions of "maintenance & welfare of parents & senior citizens act 2007" and since it is opined that awareness about the act will prevent (at least lessen) elderly abuse, hence state govt. is requested to strengthen publicity about the act by using mass media, organizing meeting, seminars etc. Peoples representatives, NGO's, community leaders etc. should put their endeavour for publicizing different provisions of the act. Report by Dr. Kaushik Ranjan Das.

News from Maharashtra

KOLHAPUR BRANCH

CELEBRATIONS OF WORLD ELDERS DAY AT KOLHAPUR

GSI Kolhapur Chapter & FESCOM Manoyuva council, jointly celebrated "World Elders Day" at Jain Hall Kolhapur. Dr P.M.Chougule, renowned psychiatrist delivered a talk on "Mental Health in Elderly" giving tips for early diagnosis, management and prevention. On this occasion he appealed for preventive health checkup and announced 50% concession to elderly. Reported by Dr. Sanjay Bajaj.

NAGPUR BRANCH

INSTALLATION OF CHAIRMAN ON SUNDAY 27 NOV 2016

Dr. Sanjay Bajaj informed the installation of 6th chairman of Vidarbha Chapter Dr Rajesh Soni (Urologist) at Nagpur.

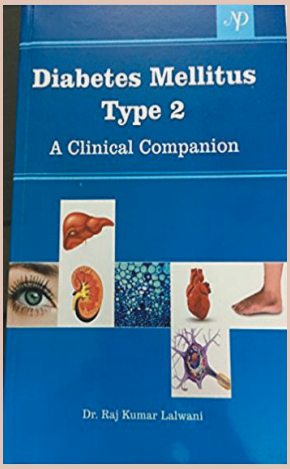
The earlier chairmen of this prestigious chapter have been Founder Chairman Dr SM Patil (Geriatric Physician), Second Chairman Dr Vikas Mahatme (Ophthalmologist) Padma Awardee, third Chairman Dr Madan Kapre (ENT Surgeon and Cochlear Implants Specialist), Fourth Chairman Dr Bhau Rajurkar (Anesthesiologist), Fifth Chairman Dr Jayant Pande (Neurophysician).

On this occasion there will be Release Ceremony of two books in Marathi: first one by Dr. Sanjay Bajaj on Falls and another by Dr Shailesh Pangaonkar on Geriatric Psychiatry.

There will be Distribution of 5th Shrawan Bal Puraskar in 3 Categories: Male, Female and NRI.

This will be followed by 'MEET THE PRESS' will be organised for Mahrashtra Media and Public Awareness Programs (PAP) for Senior Citizens. So many other ideas will be Executed for Promotion of Geriatrics in Central India. A report by Dr. Sanjay Bajaj.

BOOK REVIEW



Dr. Raj Kumar Lalwani presents an extremely relevant account on diabetes care in his latest handbook: Diabetes Mellitus Type2 : A Clinical Companion; he successfully bridges the gap between theory and practice.

Through with a rather unconventional but practical approach, owing to his tremendous practice of over two decades, Raj Kumar addresses a pertinent gap - lack of documentation on successful plans of treatment for Indian patients. While there are multiple handbooks and practitioner guides,available on patients worldwide, they may not be contextually suitable or genetically applicable to the Indian milieu. Raj Kumar's take makes for a must keep for clinicians inclined to understand diabetes and address this growing health menace.

DELENG/2012/42798 Dt. 12 June 2012
Price Rs. 20 per copy

All Members are Requested to
Kindly update their
Email ID / Telephone No:
by sending mail to
secretariat office of GSI.