



RAMAIAH
Medical College

Geriatric Giants

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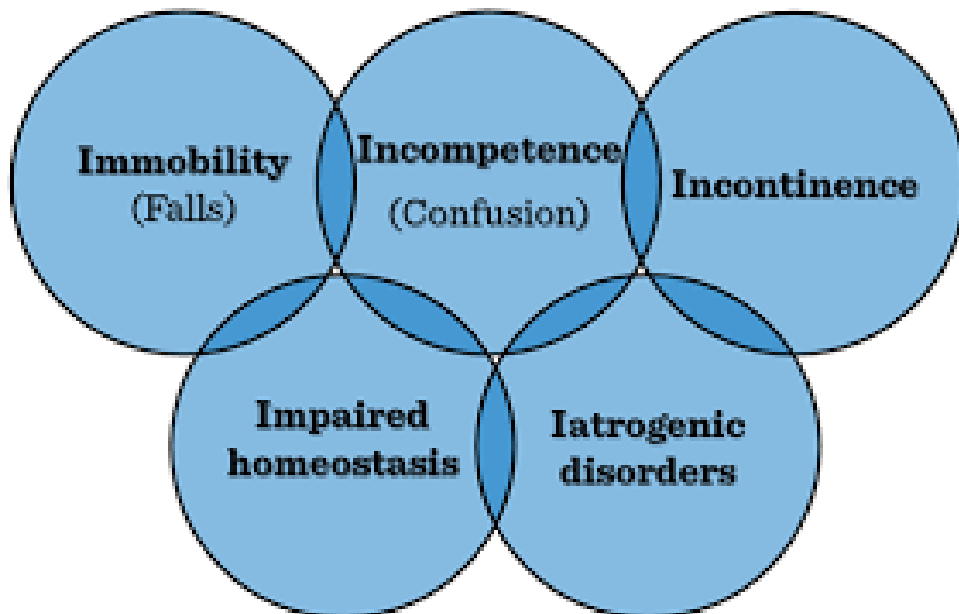


“Geriatric Giants”

Giants of geriatrics was a term coined by the late Prof. Bernard Isaacs to highlight the major illnesses associated with ageing. The Geriatric Giants reflected the gigantic numbers of elderly afflicted and the giant onslaught on the independence of the victims!

They are:

1. Immobility (frailty)
2. Instability
3. Incontinence
4. Adverse drug reactions
5. Impaired intellect/memory
6. Insulin resistance (diabetes mellitus)
7. Impaired Homeostasis
8. Inanition(malnutrition)
9. Impoverishment



IMMOBILITY:

It is often multifactorial. The main causes of immobility are weakness, stiffness, pain, imbalance, and psychological problems. Weakness may result from disuse of muscles, malnutrition, electrolyte disturbances, anemia, neurologic disorders, or myopathies. Imbalance and fear of falling are major causes of immobilization.

- a. Musculoskeletal-OA- pain, muscle weakness and leading to inactivity



- b. Heart-disease/COPD/CCF- leading to shortness of breath and loss of work ability
- c. CNS-Stroke-muscle weakness, abnormal gait, poor proprioception
- d. Cataracts-Macular degeneration-poor vision and falls

Consequences:

- a. Adversely affects the quality of life of older people
- b. Inactivity increases the risks of incontinence, pressure ulcers, deep vein thrombosis, osteoporosis, and pulmonary embolism.
- c. Increases the risks of muscular weakness, lowered aerobic capacity, finally leading to poor physical capacity.

Treatment:

The most important step is preventive. Avoid bed rest whenever possible and when bed rest cannot be avoided, patients should be positioned as close to the upright position as possible several times daily.

INSTABILITY:

Risk factors:

- a. Sensory disturbances: Vision, hearing, vestibular function, and proprioception
- b. CNS - problems in central integration
- c. Dementia - cognitive function decline
- d. Musculoskeletal
- e. Medications
- f. Falls

Falls: Balance and ambulation require a complex interplay of cognitive, sensory, neuromuscular, and cardiovascular function and the ability to adapt rapidly to an environmental challenge. With age, balance becomes impaired and sway increases. Falls are very common in older people. Falls are the sixth leading cause of death for older people and a contributing factor in 40% of admissions to nursing homes. Although only 10–15% of falls result in serious injury, they cause 90% of hip fractures in this age group.

Causes:

- a. Majority occurs during ordinary walking, stepping up or down and while changing position
- b. Environmental hazards present in 50% of falls. Falls at home is 70%, while descending stairs it is 10% and among 5% it is while climbing chairs or ladders.
- c. Medical causes of falls: Acute myocardial infarct, arrhythmias, postural hypotension Pulmonary embolus, Chest infection, Pneumothorax, Hypovolemia due to vomiting, Hyperthyroidism or hypothyroidism, Hyperglycemia, or hypoglycemia.
- d. Postural Hypotension
- e. Use of sedative hypnotic



- f. More than 4 prescription medicines
- g. Unable to transfer safely
- h. Gait impairment
- i. Impaired muscle strength

Risk factors for falls

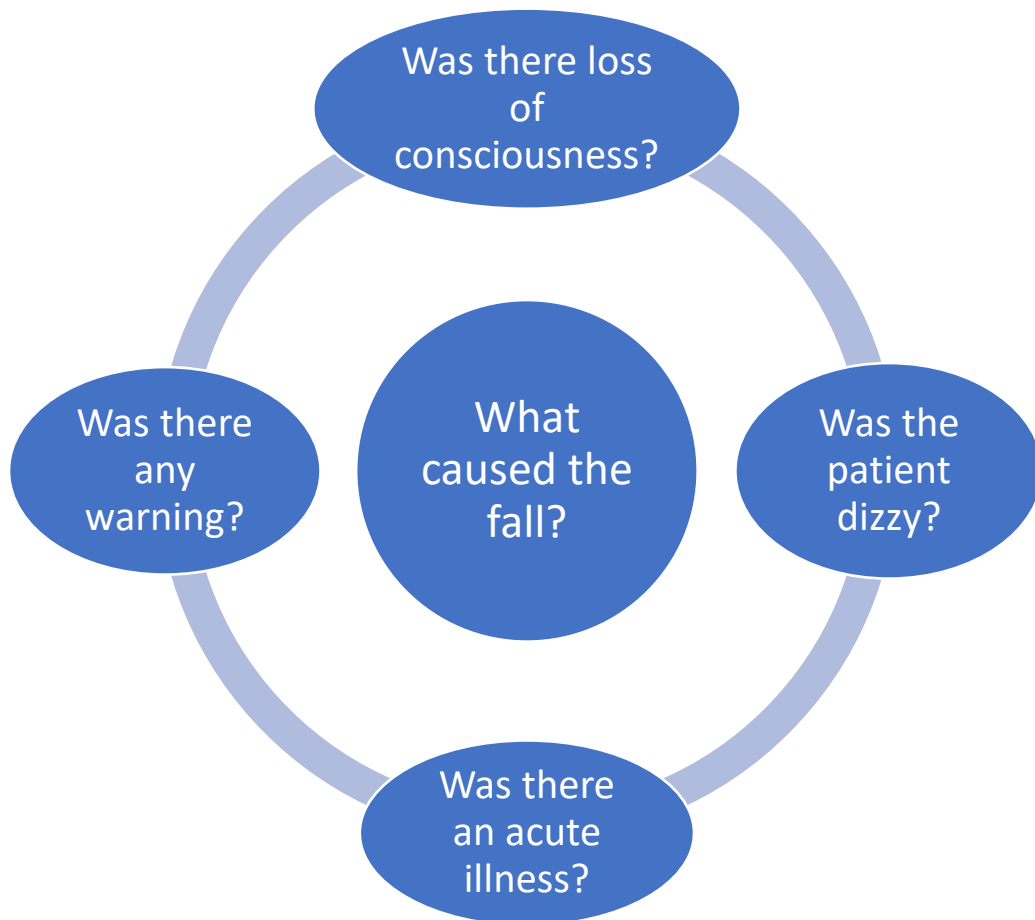
- Age >80 yrs.
- Muscle weakness
- History of falls
- Gait or balance abnormality
- Improper use of a walking aid
- Visual impairment
- Arthritis
- Impaired activities of daily living
- Depression
- Cognitive impairment
- Psychotropic medication
- Heart failure
- Infections – UTI
- Anemia

Consequences:

- a. Hip fractures (more common in women with osteoporosis).
- b. Inability to get up without help.
- c. Fear of falling and loss of confidence.



Some pertinent questions to ask:



Screening for people at risk:

- a. Long-acting sedative
- b. Previous fracture
- c. Decreased mobility
- d. More than 2 cups coffee/day
- e. "Get up & go" test
- f. Decreased vision
- g. Resting tachycardia
- h. Low calcaneal BMD



Prevention of falls:

To minimize falls in the geriatric population, ensure the following:

- a. Adequacy of illumination- accessible switches to be present at room entrances, along with night light in bedroom, hall, and bathroom.
- b. Floors need to be non-skid, and with bilateral handrails. The bathroom door locks should be removed to ensure access in an emergency, and the bed should be at proper height.
- c. Assistive devices like canes, walkers or hip protectors may be effective elements of a multifactorial intervention program.
- d. Cardiovascular interventions in ruling orthostatic hypotension, carotid sinus syndrome and vasovagal syndrome
- d. Visual intervention (poor acuity, cataracts, decreased visual field, reduced contrast sensitivity) need to be corrected.
- e. Check footwear- Regular footwear needs to be low heeled and hard soled (low resistance).

INCONTINENCE

Urinary incontinence

Urinary incontinence is defined as the involuntary loss of urine, sufficiently severe to cause a social or hygiene problem. It occurs in all age groups but becomes more prevalent in old age. While age dependent changes in the lower urinary tract predispose older people to incontinence, it is not an inevitable consequence of ageing and always requires investigation. Urinary incontinence is frequently precipitated by acute illness in old age and is commonly multifactorial.

Causes of transient incontinence

- a. Restricted mobility
- b. Acute confused state
- c. Urinary tract infection
- d. Severe constipation
- e. Drugs, e.g., diuretics, sedatives
- f. Hyperglycemia
- g. Excessive coffee and tea or alcohol intake.
- h. Urinary retention (BPH)
- i. Perineal and sacral pressure ulcers,
- j. Terminal illness.

Treatment

- a. Treat Infection with appropriate antibiotics
- b. Atrophic vaginitis to be treated with estrogen cream
- c. Pelvic floor or Kegel exercise along with bladder retraining to be encouraged.
- d. Devices: Insertion of Catheters with accurate monitoring of urine output. Indwelling catheters to be used only after other therapies have been exhausted
- e. Pads work best in stress continence.
- f. External sheaths or condom catheters can be tried but may not be useful in acute urinary



Retention

- g. Intermittent catheterization in the younger elderly can be tried.

ADVERSE DRUG REACTIONS (ADR)

Older patients are two or three times more likely to have ADR. Drug clearance is often markedly reduced in elderly because of decrease in GFR and a reduced hepatic clearance.

- a. ADR presents often atypically and nonspecifically as a “geriatric giant” which includes confusion leading to delirium, dementia, depression which in turn leads to falls, incontinence, and decreased ADL’s
- b. Multiple symptoms leading to multiple drugs
- c. Expectations -- “pill for every ill”
- d. Over reliance on symptoms rather than emphasis on geriatric assessment
- e. Multiple factors that affect drug adherence in the elderly
- f. Inadequate clinical assessment: and nonspecific symptoms are treated with drugs
- g. Major tranquilizers: elderly people are particularly vulnerable to the side effects of tranquilizers. For e.g., Delirium, extrapyramidal symptoms, arrhythmias, postural hypotension

Prevention:

- a. Make diagnoses before initiation of multiple drug therapy.
- b. Avoid treating symptoms
- c. Begin with a low dose; simplify the dose and drug regimens to maximize compliance
- d. Advise patients of any serious drug effects including potential cause of new symptoms
- e. Periodically review the list of medications and review the doses that need to be adjusted with increasing age
- f. Advanced patient age, should NEVER be considered a contraindication to beneficial drug therapy in older persons

IMPAIRED INTELLECT/MEMORY

Symptoms:

- a. Progressive deficit of memory
- b. Progressive loss of functional skills
- c. Behavioral disturbance, mood disorders and psychotic problems that arise and disappear
- d. Delirium or acute confused state. Delirium which is related to confusion and agitation is usually accentuated later in the day (“**Sun downing**”).

Delirium is a transient reversible cognitive dysfunction. It affects up to 30% of older inpatients and is associated with increased mortality and longer hospital stays. Almost any acute illness in the elderly may present with confusion, but the most common causes are infection, stroke, or the recent addition of a drug. Predisposing factors in older people include visual or hearing impairment, underlying dementia, alcohol misuse and poor nutrition.



Predisposing factors to delirium include older age, metabolic disturbances, polypharmacy, infections, and anesthesia, and hip fracture, unfamiliar surroundings with loss of daily routine, sensory under stimulation or overstimulation, disruption of sleep- wake cycle, a history of dementia or brain injury, and a number of other physical and psychological stressors. Delirium generally remits when the precipitating factor is treated or removed.

Dementia

The most common types of age-associated dementia are those caused by Alzheimer's disease and cerebrovascular pathology (most notably vascular dementia – formerly called multi-infarct dementia). Some older adults may have both Alzheimer's disease and vascular dementia. Unlike milder forms of cognitive decline associated with normal aging, the cognitive deficits associated with dementia cause significant impairment in social and occupational functioning.

People with progressive dementia often evidence co-existent psychological symptoms, which may include depression, anxiety, paranoia, and behavioral disturbance.

Coronary artery disorder / ischemic heart disease:

The prevalence of coronary artery disease & congestive heart failure increases with age. The spectrum of presentation of acute myocardial infarction (AMI) also changes. Chest pain or discomfort is less frequent, while syncope, shortness of breath and acute confusion are more common and sometimes the sole presentation.

Parkinson's Disorder:

The prevalence of Parkinson's disease (PD) increases with age, given that age is the single most important risk factor. Bradykinesia, rigidity, tremor, and problems of gait and balance are commonly found in elderly people without any neurological illness. These may be difficult to differentiate from early PD. Non-motor symptoms of PD like constipation, incontinence, and falls, orthostatic hypotension, sweating abnormalities, dysphagia, dribbling, and psychiatric disorders may be more common at presentation.

Gastrointestinal Disorder:

The incidence of gastro esophageal reflux disease (**GERD**) and its complications increase substantially with age. Compared with younger individuals, older patients with GERD have more severe mucosal disease. Older individuals with GERD may have greater respiratory involvement. There is a higher prevalence of *Helicobacter pylori* in the elderly and as the prescribing of NSAIDs increases.

Osteoarthritis

Symptoms of osteoarthritis typically develop slowly. Pain with use of the involved joint is a common symptom. Stiffness & pain immediately after being sedentary is a feature of osteoarthritis and is referred to as a "gel phenomenon." The morning stiffness of osteoarthritis typically lasts no more than 30

minutes. Hand involvement with osteoarthritis leads to knobby enlargements of the small joints of the fingers.

Treatment: Anti- Inflammatory medications – Aspirin, ibuprofen, or Acetaminophen. Pain relieving creams or sprays can also help when applied directly to the sore area. Persisting pain can be eased by injection of steroids into the affected joint.

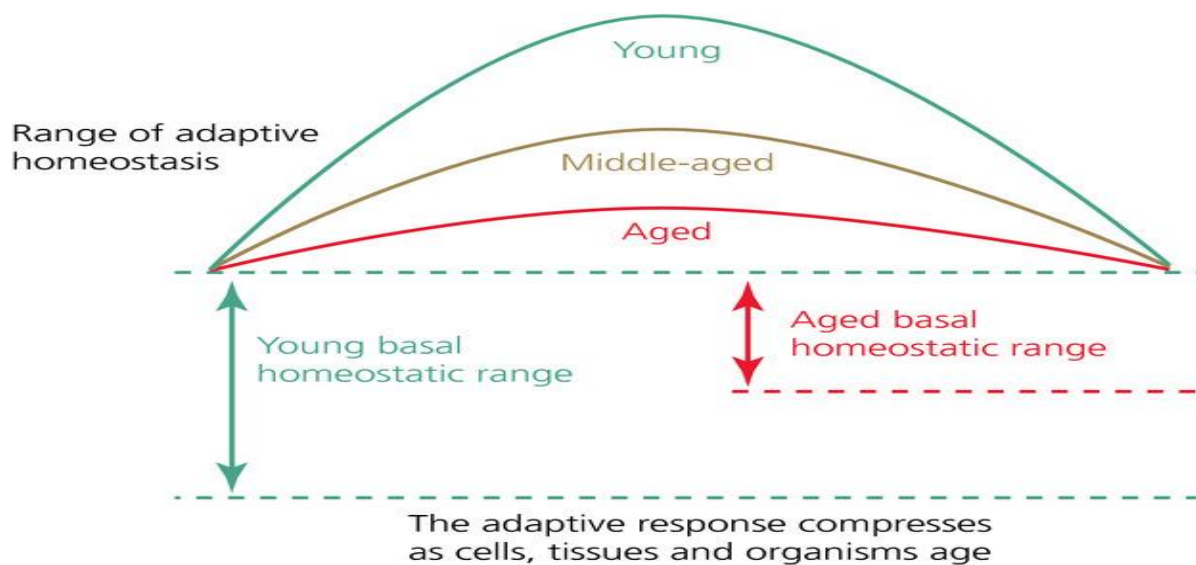
Hypertension:

Geriatric consideration related to hypertension includes:

- Is generally of a salt-sensitive nature.
- Aging is often associated with impaired baroreflex function.
- Be careful of white coat HTN (excited with increase of cardiac output with non-compliant arteries).
- Measure both sides take average of 3 readings in same visit.
- Relative increase in systolic HTN.
- Increase in pulse pressure (Systolic and Diastolic).
- Especially among older persons, **SBP is better predictor of events** (coronary heart disease, cardiovascular disease, heart failure, stroke, end stage renal disease, and all-cause mortality) than DBP.

Diabetes:

Elderly people are more glucose intolerant and insulin resistant than young individuals Hence, many of them will develop type 2 diabetes. It may be due to biological aging or environmental and lifestyle factors. Alteration in fat deposition, abnormal muscle composition, poor dietary habits and lack of physical activity all add to reduced insulin sensitivity. Ageing is associated with the inability to activate and/or modulate several adaptive responses.



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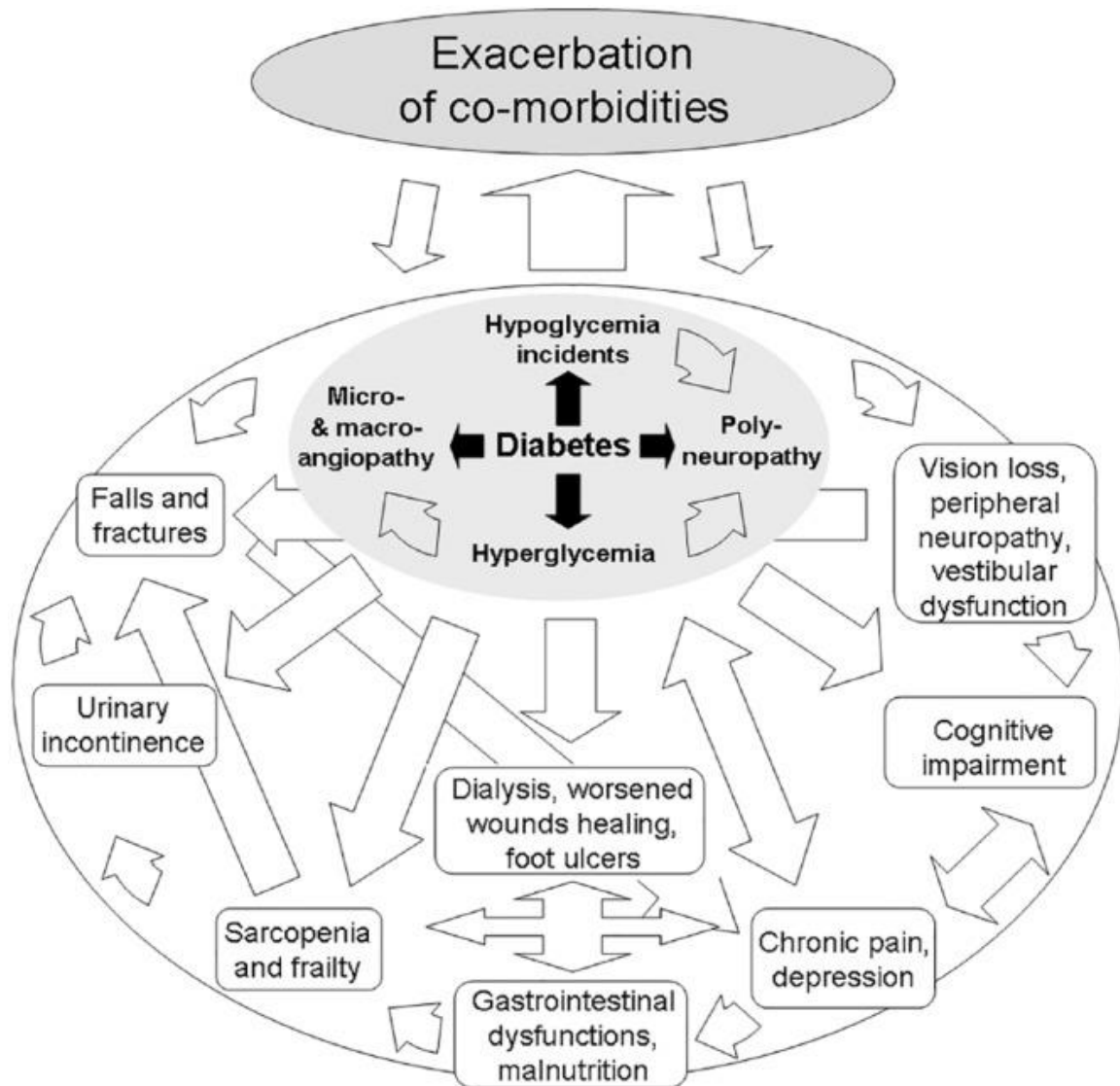
Impoverishment/Malnutrition:

Lack of purchasing power and the inability to purchase can increase medical issues and hence health problems can multiply. Inadequate nutrition and poor intake can shorten the life span of the individuals.

Physiologic	Pathologic	Sociologic	Psychologic
Decreased taste	Dentition	Ability to shop for food	Depression
Decreased smell	Dysphagia, swallowing problems	Ability to prepare food	Anxiety
Dysregulation of satiation	Diseases (cancer, CHF, COPD, diabetes, ESRD, thyroid)	Financial status low socioeconomic	Loneliness
Delayed gastric emptying	Medications (diuretic, antihypertensive, dopamine agonist, antidepressant, antibiotic, antihistamine)	Impaired activities of daily living skills	Emotionally stressful life events
Decreased gastric acid	Alcoholism	Lack of interactions with others at mealtime	Grief
Decreased lean body mass	Dementia		Dysphoria

CHF = congestive heart failure; COPD = chronic obstructive pulmonary disease; ESRD = end-stage renal disease.

Image: Carol Evans Malnutrition in the Elderly: A Multifactorial Failure to Thrive Perm J, 2005 Summer; 9(3): 38–41.



The complex relations between geriatric syndromes, diabetes complications, and comorbidities.

Note. The position on the diagram does not prejudice the importance of the health problems mutually dependent on each other.



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