**SYLLABUS POINT : 7**

**VARDHAKYAJANITA VIKARA (GERIATRIC MEDICINE)**

**DEFINITION**

* Geriatric medicine is the specialised branch of medicine that deals with medical problems of older persons.
* Ageing can be described from a physiologic standpoint as a progressive constriction of the homeostatic reserve of every organ system.
* An abrupt decline is any system or function is always due to disease and not due to “ ***Normal Ageing***”.

**CHARACTERISTICS OF GERIATRIC PATIENTS**

1. Often have Chronic, progressive and multiple disorders.
2. Need long term multiple drug treatment and are vulnerable to adverse drug reactions.
3. Are slower to recover and are vulnerable to residual impairments and disabilities.
4. They may need long term physical and rehabilitive therapy to restore function.
5. May show atypical variations, diagnostic / therapeutic problems.
6. Their socioeconomic deprivation such as inadequate family support, lack of availability of medical care, lack of finances and ageist attitude also influences disease in them.
7. Compared to young, geriatric patients have higher morbidity and mortality.

**POSTULATED MECHANISMS OF AGEING**

Ageing may be due to :

1. Cumulative spontaneous somatic mutations.
2. Errors in protein synthesis
3. Ongoing DNA rearrangements.
4. Damage by free radicals.

**PHYSIOLOGICAL EFFECTS OF AGEING**

1. ***Skin and integuments***

* Loss of skin elasticity & Wrinkled skin.
* Difficulty in regulation of body temperature.
* Hair loss and hair becomes finer.
* Depigmentation of hair.

1. ***Musculoskeletal system***

* Decline in number of anterior horn cells results in muscle weakness and wasting.
* Physical inactivity

1. ***Smell and taste sensation***

* Decline in taste and sense of smell resulting in decreased appreciation of flavour of food.

1. ***Joints***

* Degenerative changes in joints i.e. in weight bearing joints resulting in OA.
* Degeneration of cervical and lumbar vertebrae and their intervertebral discs.

1. ***Immune function***

* Ageing , poor nutrition and chronic – ill health in many old people interact with each other to interfere with immune function.

**GIANTS OF GERIATRIC MEDICINE**

These refer to 4 of the most common causes of incapacity in elderly patients referred a to a geriatric unit , namely :

1. Acute confusion
2. Urinary incontinence
3. Immobility
4. Falls
5. **ACUTE CONFUSION**

* Acute confusional state in elderly patient usually is the result of organic disease or a manifestation of drug toxicity i.e. sedatives , hypnotics , antiemetics or anticholinergics.

1. **URINARY INCONTINENCE**

**DEFINITION**

* It is the involuntary passage of urine through urethral orifice , a common problem in older persons (females).

**RISK FACTORS**

1. Smoking
2. Chronic cough
3. Depression
4. Obesity
5. Oestrogen depletion
6. Constipation
7. Sanitation problems

**CAUSES**

|  |  |
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| **ESTABLISHED CAUSES** | **TRANSIENT CAUSES ( DIAPPERS)** |
| 1. Cerebral or spinal cord lesion 2. Strokes 3. Dementia 4. Bladder disease 5. Parkinsonism 6. Myelopathy | 1. Delirium 2. Infection of urinary tract 3. Atrophic senile vaginitis 4. Pharmaceuticals or drug induces ( diuretics ) 5. Physiological causes like depression 6. Excessive urine output 7. Restricted mobility 8. Stool impaction |

**INVESTIGATIONS**

1. Cystoscopy
2. Urodynamic Studies
3. Cystometry
4. Sphincter Electromyography

**TREATMENT**

1. **GENERAL MEAUSRES**
2. Psychological support.
3. Behaviour modification
4. Frequent toileting schedule.
5. Provision of bed pans and urinals
6. Urethric sphincter and pelvic floor exercises.
7. Bladder training
8. T/t of infections.
9. Supraabsorbable padspessaries
10. Undewelling catheters
11. **PHARMACOLOGICAL TREATMENT**
12. Anticholinergics
13. Spasmolytics
14. Imipramine - 25mg BD
15. Oxybutynin - 2.5 mg – 5 mg TDS
16. Oestrogens
17. **IMMOBILITY**

* Age related changes in the neurological and musculoskeletal system and a high prevelance of disorders such as stroke, Parkinson’s disease, OA & OP, interact to make poor mobility .

**OSTEOPOROSIS**

* Ageing is associated with osteoporosis with increased risk of fractures.

***Risk Factors***

1. Under nutrition
2. Asthenic fluid
3. Calcium and vitamin deficiency
4. Sedentary life
5. Smoking
6. Alcoholism
7. Caffeine excess

***Investigations***

1. Bone mineral density ( BMD) by dual energy X- ray absorptiometry ( DEXA )

***Treatment***

1. Walking and antigravity weight bearing / muscle strengthening exercises
2. Sunlight exposure for 15 mins. a day for 3 times a week
3. Adeqaute intake of calcium – 1200 mg/ day
4. Vitamin D - 400 - 800IU/ Day
5. Quit smoking & alcohol
6. Hormone therapy
7. **FALLS**

**DEFINITION**

* It is defined as sudden unintentional changes in positions causing subjects to land on ground or on a lower level in older persons.

**CLINICAL FEATURES**

1. Recurrent falls (2 or more falls in 6 months).
2. Impairment of vision & hearing
3. Reduction of proprioceptive and vibratory sensations
4. Increased sway
5. Altered gait
6. Poor positional control

**CAUSES *(FALL SYNDROME)***

1. Falls from extrinsic causes: Uneven Floors, Defective Staircases, Footwear & Lighting.
2. Arrhythmias
3. Lower Limb Neuropathy
4. Lower Limb Diseases like 0A.
5. Syncope
6. Instability
7. Neurological diseases: Hemiplegia , Parkinsonism
8. Defects of Cognition , Vision & Hearing
9. Recurrent falls
10. Orthostatic Hypotension & Orthopaedic Problems of old age
11. Muscle Weakness
12. Epilepsy & Seizures

**TREATMENT**

***FALL PREVENTION TECHNIQUES***

1. Treat visual, auditory, neurological & mobility deficits.
2. Exercises to improve strength, balance and endurance.
3. Review medicines affecting balance i.e. sedatives, antihypertensive.
4. Adequate lighting in home & installation of hand rails in bathrooms.
5. Remove rugs & have non-slip floors in bathroom.
6. Correct footwear use & placing the home furniture at right place.
7. External protector devices.

**RISK FACTORS FOR FALL & POSSIBLE REHABILITION MEASURES**

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| --- | --- | --- |
| **RISK FACTORS** | **MEDICAL INTERVENTION** | **REHABILITION** |
| 1. Reduced Visual Acuity | * Refraction * Cataract Surgery | * Safety measures at home |
| 1. Reduced Hearing | * Wax Removal * Hearing Evaluation | * Hearing Aid |
| 1. Proprioceptive Dysfunction | * Correct Vitamin B12 level * Treat Cervical Spondylosis | * Correct Size Footwear * Walking Aid |
| 1. Sedatives | * Use lowest effective dose | * Slow & Steady Walk |
| 1. Antihypertensives | * Avoid Postural Hpotension | * Check BP lying & standing |
| 1. Musculoskeletal Disorders | * Neurological Evaluation | * Exercise & Gait Training |

**PRINCIPLES & MANAGEMENT OF GERIATRIC PROBLEMS**

1. Avoid prolonged bed rest whenever possible.
2. Patients should be positioned in the upright posture several times daily.
3. Skin over pressure should be inspected frequently.
4. Drug therapy in the elderly should be eployed only after non- pharmacologic means have been considered and tried.
5. Once pharmacotherapy has been decided upon, the drugs should be started with minimal optimal dose and thereafter the dose may be increased gradually as required.
6. The no. of drugs administered should be as few as possible.
7. **PREVENTIVE GERIATRICS**
8. ***Periodic assessment of:***
9. Person’s vision
10. Hearing
11. Locomotion
12. Cognition
13. Nutrition
14. Psychological status
15. Activities of daily living (ADL)
16. Instrumental activities of daily living (IADL)
17. Home environment
18. Living arrangements
19. Social and family support
20. Financial dependence.
21. ***Disseminating messages & practicing positive health practices :***
22. Physical exercise
23. Healthy diet
24. No smoking
25. Vaccinations
26. Periodic check-ups
27. Stress management
28. Joint family system
29. Informal support network
30. Social & spiritual enrichment
31. **REHABILITATION & PHYSICAL THERAPY**

* Rehabilitation refers to a combination of physiatrist i.e.

1. Physical Therapy
2. Occupational Therapy
3. Speech Therapy
4. Psychiatric Counselling
5. Social & Economic Rehabilitation.
6. Various Exercises
7. Training in ADL ( Bathing, Feeding, Toileting & Transferring)
8. T/t of pain & inflammation
9. **PALLIATIVE / TERMINAL CARE**

* Older persons need palliatve or terminal care which is a total care of terminally ill-patients with untreatable diseases like cancer, AD, & covers physical aspects like pain, and distress as well as psychological, social & spiritual aspects.
* Terminal care can be offered at home , hospice ( neither a hospital nor home but a combination of both where a dedicated team of of physician , nurse , social worker and a counsellor) or at a general hospital.

1. **RESPITE CARE**

* It is temporary supportive care of an older person by a substitute caregiver.