

Module – 10:

Geriatric Syndrome

Learning objective:-

- ❖ Definition of Geriatric Syndrome(GS)
- ❖ Various syndromes
- ❖ Impact of GS on elderly
- ❖ How to identify
- ❖ How to address the problem

Definition:- “Geriatric Syndrome” (GS) is used to capture those clinical conditions in older people that do not fit into discrete disease categories and involves multiple unrelated systems that renders them vulnerable to situational challenges. It has deleterious effects on their function and quality of life . The pathophysiology is often multifactorial and their presentation is usually stereotypical and often involves systems unrelated to apparent the chief complaint.

Various syndromes

According to American Geriatric society guidelines (2005) , the syndromes are :

- Fall
- Frailty
- Urinary incontinence
- Anorexia and malnutrition
- Dementia
- Delirium
- Depression
- Pressure ulcers
- Sleep disorders

- Pain
- Immobility
-

Comprehensive Geriatric Assessment

Introduction

Comprehensive geriatric assessment is a multidisciplinary process and the information generated is used to plan treatment both immediate and long term, follow up, and rehabilitative services.

Objectives

To learn about

The meaning of comprehensive Geriatric Assessment

Choosing the patient population who will be benefitted.

Components and team members of CGA

Various Assessment instruments

Practical feasibility in implementation.

Definition:

Comprehensive Geriatric assessment (CGA) is the systematic evaluation of frail older persons by a team of health professionals. Physical health, functional status, mental and psychological health and social environmental factors are evaluated, analyzed and effective strategy is planned for the betterment of patients.

Patient selection

CGA programs targets geriatric patients under high risk category who are at risk of adverse outcomes and expected to have high health care

utilization. It should not be done in older patients who are too fit or too sick.

Some examples of patients who need CGA are:

- a) Frail elderly above 75,
- b) 65+ with multiple chronic conditions and polypharmacy,
- c) Recent onset reported functional decline,
- d) Presenting with Geriatric syndromes,
- e) Detecting a new disability/ risk for developing a disability- e.g. High BP, vertebral fracture noticed in a routine X- Ray.

It can be done in any OPD setting using one of the many screening tools. A simple screening tool which is less time consuming should be tried.

PROBLEM	SCREENING MEASURE	Positive Screen
Vision	Do you have difficulty driving, or watching television, or reading, or doing any of your daily activities because of your eyesight?" Test each eye with Snellen chart	Yes to question and inability to read greater than 20/40 on Snellen chart.
<i>Hearing</i>	Whisper test may be used. Stand behind a patient and test one ear at a time . Whisper 3 to 6 random numbers from 2 feet distance.	If the patient can repeat 50% of numbers correctly then it is considered ok.
<i>Leg mobility</i>	Time the patient after asking: "Rise from the chair. Walk 20 feet briskly, turn, walk back to the chair and sit down."	Unable to complete task in 15 s.

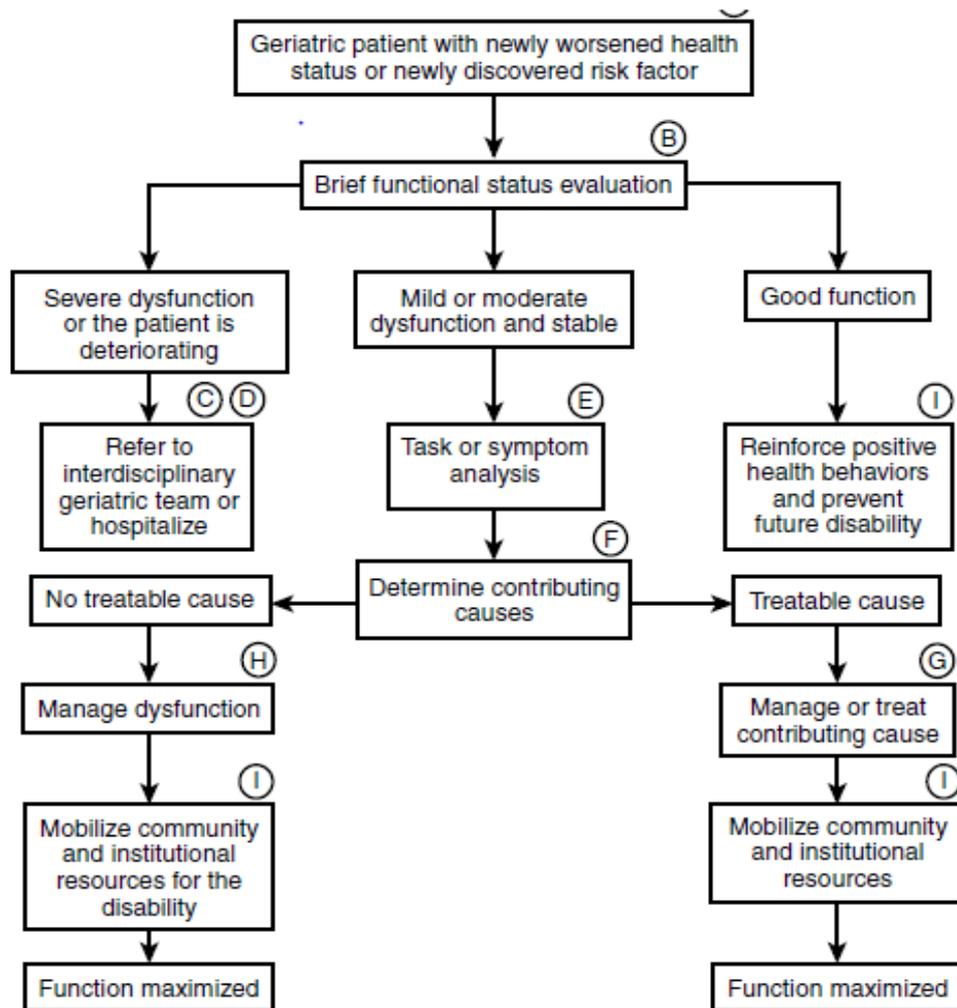
<i>PROBLEM</i>	SCREENING MEASURE	Positive Screen
<i>Urinary incontinence</i>	<p>“In the last year, have you ever lost your urine and gotten wet?”-If yes, then ask: “Have you lost urine on at least 6 separate days?”</p>	Yes to both questions.
<i>Nutrition/weight loss</i>	<p>“Have you lost 10 lbs over the past 6 months without trying to do so? Weigh the patient.</p>	Yes to the question or weight <100 lb.
<i>Memory</i>	Three-item recall.	Unable to remember all three Items after 1 minute.
<i>Depression</i>	Ask: “Do you often feel sad or depressed?”	Yes to the question
<i>Physical disability</i>	<p>Six questions: “. . . do strenuous activities such as fast walking or bicycling?” “. . . do heavy work around the house such as washing windows, walls, or floors?” “. . . go shopping for groceries or clothes?” “. . . get to places out of walking distance?” “. . . bathe, either a sponge bath, tub bath, or shower?” “. . . dress, such as putting on a shirt, buttoning and zipping, or putting on shoes?</p>	No to any of the questions.

Consequences of malnutrition in the elderly

Weight loss	Muscle wasting	Decreased mobility	Psychological impacts
Impaired immune response		Impaired ability to perform daily tasks	Increased risk of falls and fractures
Vitamin and mineral deficiency		Impaired wound healing	Increased risk of wound infection and pressure sores
Increased risk of infection	Decreased QOL	Higher risk of thromboembolism, heart failure and hypothermia	
Delayed recovery from illness and infection	Greater risk of mortality		
Reduced respiratory and cardiac muscle function			

Team members

Core members of the team are the physicians, a nurse and a social worker. The other members are variety of rehabilitation therapists (physical, occupational, speech), psychiatrists, psychologists, and health specialists according to the patient need.



Key messages

1. CGA should be the part and parcel of Geriatric assessment of elderly at risk

2. It is a multidisciplinary process with the physician and nurse playing an important role.
3. Patient selection, assessment of various components, interpretation of results and implementation of recommendations is the important duties of the physician in charge.
4. Involvement and coordination of health care professionals, social workers and care givers are necessary.

DELIRIUM IN ELDERLY

Introduction

“Delirium” is one of the geriatric syndromes. It is acute change in attention and cognition and when recognized early it is a preventable cause of morbidity and mortality in elderly.

While it usually occurs in hospital setting, it may also occur in community dwelling elders. It has a dramatic presentation and is stressful event for the care givers who find it difficult to understand, what has happened to the patient, therefore it is important for the health care provider to understand and identify those factors which can be corrected at the PHC.

Learning Objectives

Upon completion of this chapter student should be able to:

- Recognize and assess Delirium
- Identify the predisposing and precipitating factors
- Formulate a targeted treatment and minimize unnecessary pharmacological and physical restraints
- Refer patients with unexplainable problems urgently to a higher centre

Diagnostic Criteria for Delirium

Diagnostic And Statistical Manual (DSM – IV) criteria are the gold standard for diagnosing Delirium. This requires the following features to be present:

- Disturbance in consciousness (i.e. reduced awareness of the environment) with impaired ability to focus, sustain or shift attention
- A change in cognition (memory deficit, disorientation or language disturbance) and perceptual disturbance that cannot be explained by pre-existing dementia
- The disturbance develops over short period of time and fluctuates over 24 hours
- Evidence from history, physical examination or lab investigations to underlying organic cause or a medical condition or drugs

The most widely used scale for assessing Delirium is the Confusion Assessment Method (CAM). This requires acute onset of impaired cognition and fluctuating course, impaired attention and either disturbance in consciousness or disorganized thinking.**CAM TABLE**

They may be a rapid deterioration of consciousness and the patient will keep shifting his focus and will be unable to maintain attention. There may be rumbling incoherent speech, disorientation, hallucinations and some gaps in memory and these symptoms may not be explained by dementia.

It usually occurs in patients who have been hospitalized.

Types of Delirium

Hyperactive Delirium: the patient is hyper alert, increased vigilance with hallucinations. The prototype of this form of Delirium is Alcohol withdrawal and it's easily recognizable

Hypoactive Delirium: the patient is withdrawn, sleepy with reduced activity. Since this can be easily missed, leads to delay in diagnosis and bad prognosis

Mixed type: patient fluctuates between hyper and hypoactive forms

Predisposing Factors / Vulnerability

- Advanced age
- Alcohol withdrawal
- Baseline cognitive impairment
- Sensory impairments
- Multiple co-morbidities
- Taking more than 4 prescription or non-prescription medications
- Depression
- Low social support

Precipitating factors / Insults

- Addition of new drug
- Admission in acute care
- Major surgery
- Sleep deprivation
- Infections
- Electrolyte imbalance

- Physical restraints

Drugs

Drugs are the important precipitants of Acute confusional state. Although many drug groups are implicated, the following are most important:

- Sedative – Hypnotics
- Narcotics
- H2 blockers
- Drugs with anti-cholinergic effects
- Anti-epileptics

Evaluation

History: should be obtained from reliable informant. Focussed history regarding underlying comorbidities, previous hospitalizations, drug abuse, and particularly prescription, non-prescription and OTC medications should be sought

Physical examination:

- Vitals –including O2 saturation
- **Respiratory system:** look for evidence of Pneumonia, Pleural Effusion
- **Cardiovascular System:** look for arrhythmias, signs of Infective endocarditis and Congestive Cardiac failure
- **Abdomen:** look for signs of occult infection, bladder obstruction , loaded colon and an acute abdomen
- **Nervous System:** focal neurological signs and those of meningeal irritation

Laboratory Investigations

- Investigations to rule out infection, metabolic and electrolyte abnormalities
- Serum cortisol, Vitamin B12, Thyroid profile
- ECG and Chest X ray to rule out cardiac and respiratory abnormalities
- Imaging studies of Brain for evidence of organic brain damage

Differential Diagnosis

Delirium should be differentiated from similar conditions like Acute Psychosis, Dementia and Depression. A careful history regarding onset, progression and associated perceptual abnormalities will help to arrive at diagnosis.

Management

Non – Pharmacological Measures

P – Protocol for sleep

R – Replenish fluids or recognise volume depletion

E – Ear aids

V – Visual aids

E – Exercise or early ambulation

N – Name place, person (frequent reorientation to time, place and person)

T – Taper unwanted and culprit drugs

Identify precipitants

Pharmacological treatment

Haloperidol is the drug of choice. It should be used in lowest possible dose (patient should be awake but manageable). It may be given in the dose of 1.25 to 2.5 mg IM. Sedatives (Diazepam) are not indicated routinely.

Key messages

- Delirium is an important preventable geriatric syndrome
- Cause is multifactorial with predisposing and precipitating factors
- Drugs are important precipitants
- Non pharmacological methods should be tried first

References

1. Hazard's Geriatric Medicine and Gerontology – 6th edition
2. Harrison's principles of Internal Medicine – 19th edition

3. Geriatrics Current Diagnosis and Treatment – Lange – 2nd edition

FALLS

Definition: - A Fall is an unintended change in posture in which the participant comes to rest on the ground or lower level that are not caused by loss of consciousness, stroke, seizure or over whelming forces.

LEARING OBJECTIVES

At the end of the chapter, the medical officer will understand that falls

1. Fall are a common cause of morbidity and mortality
2. Causes of falls are multi factorial.
3. Screening tests are available to predict the risk of fall.
4. Targeted multi factorial interventions are necessary to prevent falls.

Above 10% of people who fall sustain serious injuries like hip fractures, fractures at other sites, head injuries and serious internal injury.

Post fall syndrome is a serious consequence of fall where an individual develops fear of falling after experiencing a fall, with an impact of on the persons social life, confidence to live independently and results in immobilization and de-conditioning.

ETIOLOGY

Falls is multifactorial. They may be Intrinsic/ extrinsic/ situational

Intrinsic factors

1. Problems in vision, hearing , proprioception,
2. Cardiac conditions like orthostatic hypotension, syncope, carotid sinus hyper sensitivity.
3. Neurological disease
Parkinsonism
Stroke
Dementia
4. Musculoskeletal:
Arthritis,
Lower limb muscle weakness
Foot problems
5. Acute illness

6. Medications- Sedative and hypnotics

Extrinsic factors:

1. Poor lighting
2. Unsafe floor
3. Staircase
4. Slippery bath floor
5. Crowded walk ways
6. Crowded furniture
7. Un safe kitchen

1. History with regard to fall
2. Physical examination

HISTORY

Pneumonic SPLATT is useful for recalling fall circumstances.

S – Symptoms that occurred immediately prior to fall or with the fall episode

P – History of previous fall

L – Location of fall

A – Activity at the time of fall

T – Timing of fall

T – Trauma resulting from fall

Physical examination and assessment:-

Comprehensive Geriatric Assessment should be done in these patients

a. Cardiovascular assessment including evaluation of heart rate, rhythm, postural hypotension, pulse, and BP .

b. Emergency evaluation of old persons with injurious fall warrants xray and other imaging studies.

c. Assessment of home environment should be done by home safety checklist

d. Review of medications with regard to newly started drugs or those for which the dose has been increased recently should be enquired.

SCREENING TEST

The following are the simple tests of functional mobility to assess gait and balance. These tests are simple can be done in outpatient setting and takes less time. They identify the subjects at potential risk of falls, for whom active interventions like exercises for improving muscle strength and balance can be advised to prevent a fall or prevent a future fall in a recurrent faller.

Timed up and Go test (TUG):

Where patient is made to sit in a chair without arms and the time taken to rise from chair, walk a distance of 3 meters up and down i.e., 6 meters in total is calculated.

Gait speed:

Time taken for the patient to walk 10 m distance is calculated. If TUG is more than 15 sec and gait speed for 10 meters distance is more than 13 sec, it predicts recurrent falls risk.

Interventions include

1) Strengthening exercises

High intensity muscle specific lower extremity exercises, improves strength, walking speed and other physical measures.

2) Endurance

Endurance training can be done as an individual or group basis

The most effective fall prevention programme requires coordination of several healthcare professionals like Geriatric physician, physiotherapist, occupational therapist, home nurses etc to assess and manage individuals who are at risk of fall.

Key points

- a) Fall is an unintentional change in position
- b) Falls cause high morbidity and mortality
- c) Many falls are under reported and etiology of most falls are multifactorial
- d) Simple tests can identify patients at risk for falling
- e) Simple targeted interventions may reduce the occurrence of falls

Frailty

Introduction

Frailty can be defined as generalized decreased in functional capacity, which results in increase in vulnerability towards internal and external stressor.

Learning objectives

Upon completion of the module the trainer should be able to

1. Understand the concept of frailty
2. Identify the markers of frailty
3. Start intervention at the stage of pre-frailty
4. Understand the importance of exercise and nutrition

In geriatric medicine the concept of frailty is important for several reasons

1. Prevalence of frailty is high with estimates ranging from 30-40% in those aged 85 yrs and older.
2. Frail older adults are at a higher risk for a number of adverse health outcomes, including disability, dependency, institutionalization, falls, injuries and mortality.
3. They are in high need of healthcare and informal support services as well as long term care.

Clinical features:-

Dr. Linda Fried proposed operational model of frailty as:-

1. Low Grip strength
2. Slow Walk time
3. Self reported exhaustion
4. Decreased physical activity
5. Unintentional Weight loss >10 pounds in one year

Scores :

1-3 prefrail

>3 frail

1. Grip strength

Grip strength can be measured by handheld dynamometer. The cut off for maximum grip strength (in any hand) in >70 years for male were 15 and for females were 6 in Kg, respectively Indian population.

2. Gait speed

Defined in Indian population as <0.6 m/sec.

3. Exhaustion, assessed by two questions answered as

- Everything I did was on effort or I could not get going

4. Physical activity by questionnaire

Men (kcal/wk <383)

Women (kcal/wk <270)

5. Weight loss

Unintended weight loss of >10 pounds in the past year

Most obvious physical expression of frailty is Sarcopenia i.e decrease in muscle mass and strength.

Sarcopenia is associated with

- a. Low testosterone, insulin, DHEAS, IGF-2
- b. Decreased immune function: decreased T cell proliferation and altered cytokine production
- c. Elevated pro inflammatory markers IL6, CRP, anemia, low micro nutrients (esp total carotenoids/ beta carotene/ leutin/ zeaxanthin)

Management

Evaluation is to identify frail individuals before adverse outcomes occur.

1. First approach is to identify secondary frailty resulting from disease
2. If disease has been ruled out as cause of frailty, goal should be to institute supportive intervention early.

Prescription should include

- a) Regular exercise of any form by physiotherapist.
- b) Nutritional supplements by dietician
- c) Prescription of Calcium and Vit D

Multimodal therapy of nutritional supplementation with physiotherapy as per endurance and health condition is required.

Referral indication

- a) It is essential to identify vulnerable frail individuals before adverse outcomes occur
- b) Identification of secondary frailty resulting from latent undertreated or end stage diseases like CCF can cause catabolic waste and weight loss
- c) Identify other conditions which cause wasting and responsive to therapy like diabetes, thyroid disease, tuberculosis, chronic infections, undiagnosed cancer, temporal arteritis, depression, psychosis.
- d) Evaluation should include factors which may exacerbate vulnerability to adverse outcomes of frailty like medication, hospitalization, surgery, and other stresses

Patients with the above mentioned conditions should be referred to a geriatric healthcare team for evaluation and further management.

Key points

- 1) Frailty is a predisability state
- 2) Causes of frailty are multifactorial
- 3) Early recognition and intervention can prevent adverse outcomes
- 4) Resistance exercise and good nutritional supplements are the corner stones in the management of primary frailty

MALNUTRITION IN ELDERLY

INTRODUCTION

Under nutrition and weight loss is a common problem in Elderly. Obesity is now becoming a recognized problem even in Elderly. Even in obese elderly, malnutrition is prevalent due to loss of lean body mass.

About 17% to 65% of hospitalized elderly suffer from malnutrition

LEARNING OBJECTIVES

At the completion of this chapter, reader should be able to

- Recognize and assess malnutrition
- Look for the underlying and contributing causes
- Recognize the complications due to malnutrition
- Appropriately intervene to prevent and treat malnutrition

CAUSES OF MALNUTRITION

- Poor dentition
- Decreased sense of smell and taste
- Social isolation
- Financial restraints
- Decreased accessibility to food
- Self-cooking made difficult due to arthritis and visual impairments
- Comorbidities contributing by decreasing appetite or digestion
- Poly- pharmacy interfering with nutrient intake, digestion and absorption
- Cognitive impairment
- Depression

ASSESSMENT OF MALNUTRITION

Physical examination: look for pallor, glossitis, angular cheilitis, dry brittle hair

Anthropometric examination: Body Mass Index may not be a good indicator since total body mass is mostly replaced by adipose tissue. Waist Hip ratio better predicts obesity than BMI.

Mini Nutritional Assessment (MNA): This can be used to screen for malnutrition. Score is given for weight loss, level of decrease in food intake, mobility, recent acute illness, Neuropsychological problems, and BMI.

Lab investigations: complete blood count, Blood urea, serum creatinine, Blood glucose, Thyroid profile all may give a clue to the underlying cause. Serum albumin may indicate the severity of malnutrition. Serum prealbumin indicates acute change in nutritional status.

Imaging studies can be done when there is a clue to underlying malignancy

COMPLICATIONS

- Functional decline
- Impaired immunity
- Poor wound healing
- Increased morbidity and mortality

TREATMENT

Non – pharmacological treatment

- Encourage family members to make time for elders and unhurriedly feed them
- Patients food preferences should be respected and encouraged
- Providing flavor enhanced meals
- If the patient has swallowing and chewing problems cook and mash foods accordingly
- Simple exercises like daily walking may improve appetite in elderly. Encourage activity
- If patient has depression psychiatrist evaluation should be sought
- Nutritional supplements between meals
- Small frequent meals



PHARMACOLOGICAL TREATMENT

Appetite inducing drugs

Magesterol Acetate: promotes appetite by suppressing inflammatory cytokines. Adverse effects are fluid retention, nausea and suppression of pituitary-adrenal axis with long term use.

Dronabinol: promotes appetite by influencing mood. Delirium is the important side effect

Selective Serotonin Reuptake Inhibitors (SSRI): works well if depression is the cause of decreased appetite

Anabolic Agents

Growth hormone, Testosterone and oxandrolone : these agents are found useful in conditions like HIV infection and malignancy related weight loss. Otherwise their efficacy is questionable

Nutritional supplements

Enteral nutrition: this can be provided either by nasogastric tube or feeding gastrostomy or jejunostomy. This can be tried in patients with severe Protein Energy Malnutrition (PEM) or at the risk of developing it and who cannot manage sufficient intake orally.

Advantages: can maintain Gastrointestinal structure and function, more natural route of nutrition delivery.

Disadvantages: cannot be used in intestinal obstruction, paralytic ileus, needs surgical placement of feeding tubes with associated risks

Parenteral Nutrition

This is delivery of nutrition by veins. Decision to institute Parenteral Nutrition depends on severity and duration of underlying illness, preexisting nutritional status. Usually it's effective in severely malnourished cancer patients and post-operative patients.

Total Parenteral Nutrition (TPN): this is delivery of all nutrients via veins. This requires a central vein placement. Complications include line infection, Hyperglycemia, Hypertriglyceridemia, Fluid retention, Re-feeding Syndrome, Hyperchloremic Metabolic acidosis

Key messages

- Malnutrition is a prevalent and treatable problem in elderly
- Elderly should be regularly screened for malnutrition
- Both pharmacological and non-pharmacological treatment modalities are available

References

1. Hazards' Geriatric Medicine and Gerontology - 6th edition
2. Harrison's principle of Internal Medicine – 19th edition
3. Geriatrics Current Diagnosis and Treatment – Lange – 2nd edition