MEDAVIE HealthEd
College of Paramedicine

ÉduSanté
Collège de formation paramédicale

Geriatric Assessment

Advanced Care Paramedicine

Module: 02
Section: 02

Lecture Outline

- Introduction
- Epidemiology
- General pathophysiology, assessment and management
- System pathophysiology

Introduction

- The elderly are one of the fastest growing segments of the population
- Aging involves the gradual decline of body functions
- Age related changes occur at different rates
- People become less alike as they age
  - Psychologically and physiologically

Gerontology

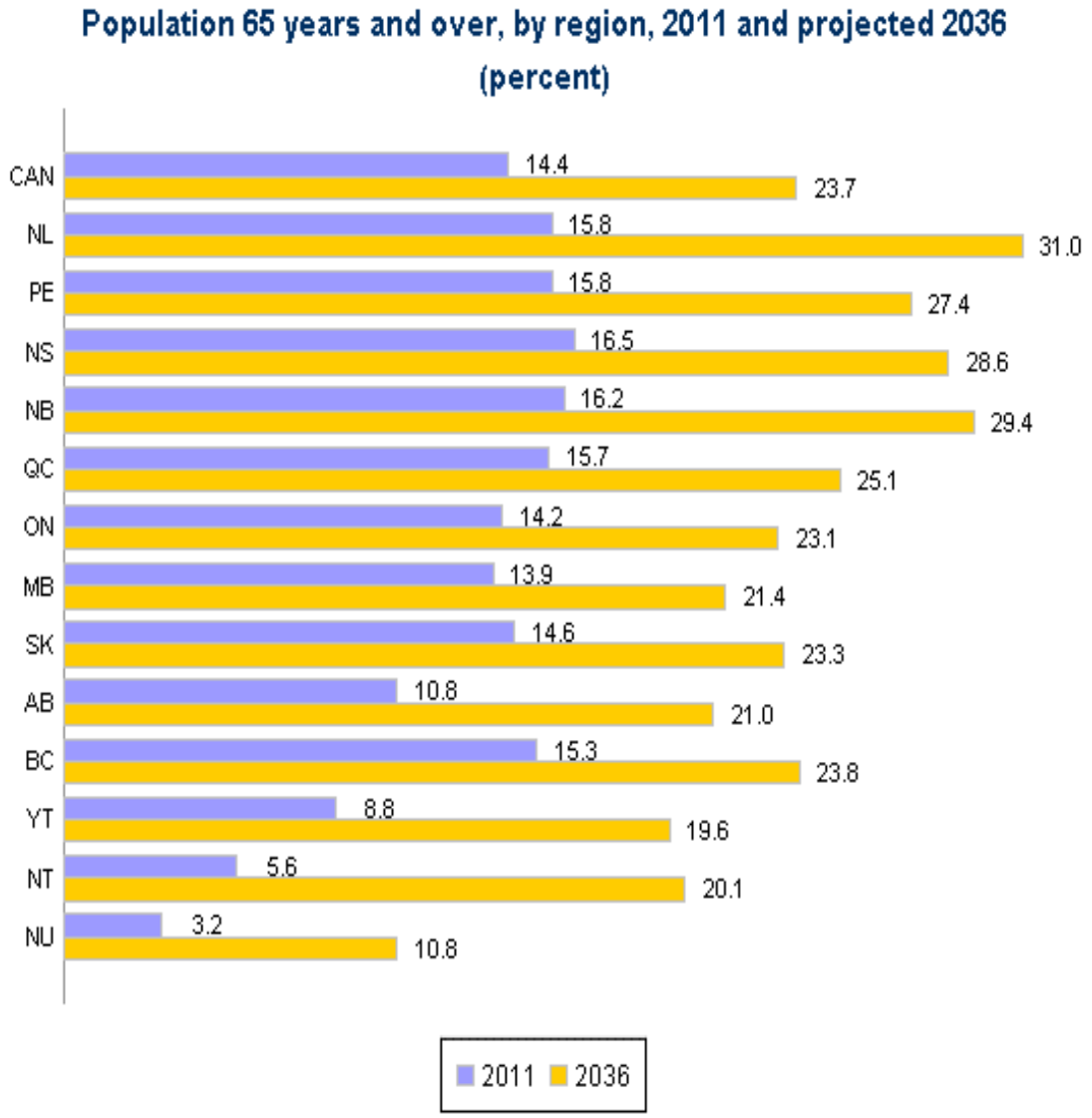
- The study of the problems of all aspects of aging including:
  - Psychological
  - Social
  - Environmental
  - Physiological

Population Characteristics

- The mean survival rate of older persons is increasing.
- The birth rate is declining.
- There has been an absence of major wars or other catastrophes.
- Health care and living standards have improved significantly since WWII.

Gerontology

- In most parts of the world, people are living longer, and this means that diseases that affect elderly people are becoming more common



Geriatrics

- Fundamental to geriatric practice is the fact that there is tremendous heterogeneity (multiple items having a large number of structural variations) among elderly people
- Clinicians recognize that chronological age is a poor descriptor of a patient's functional status
- This is the paradox of geriatrics-the study and practice of medicine in the elderly population, which is considered a group and yet is so diverse

Societal Issues

- Elderly persons living alone
  - Represent one of the most impoverished and vulnerable parts of society.
  - Factors include living environments, poverty, loneliness, social support.
- A deterioration of independence is not inevitable
  - Not necessarily a function of aging
  - May well be a sign of an untreated illness

Table 43-1 Prevention Strategies for the Older Person

Issues	Strategies
Lifestyle	
Exercise:	Weight-bearing and cardiovascular exercise (walking) for 20–30 minutes at least three times a week
Nutrition:	Varies, but generally low fat, adequate fiber (complex carbohydrates), reduced sugar (simple carbohydrates), moderate protein; adequate calcium, especially for women*
Alcohol/tobacco:	Moderate alcohol, if any; abstinence from tobacco
Sleep:	Generally 7–8 hours a night
Accidents	Maintain good physical condition; add safety features to home (handrails, nonskid surfaces, lights, etc.); modify potentially dangerous driving practices (driving at night with impaired night vision, traveling in hazardous weather, etc.)
Medical Health	
Disease/Illness:	Routine screening for hearing, vision, blood pressure, hemoglobin, cholesterol, etc.; regular physical examinations; immunizations (tetanus booster, influenza vaccine, once-in-a-lifetime pneumococcal vaccine)
Pharmacological:	Regular review of prescriptive and over-the-counter medications, focusing on potential interactions and side effects
Dental:	Regular dental checkups and good oral hygiene (important for nutrition and general well-being)
Mental/emotional:	Observe for evidence of depression, disrupted sleep patterns, psychosocial stress; ensure effective support networks and availability of psychotherapy; compliance with prescribed antidepressants

*Vitamin supplements may be required, but should be taken only after other medications are reviewed and in correct dosages. Excessive doses of vitamin A or D, for example, can be toxic.

Geriatrics

SYSTEM PATHOPHYSIOLOGY IN THE ELDERLY

Physiological Changes of Aging

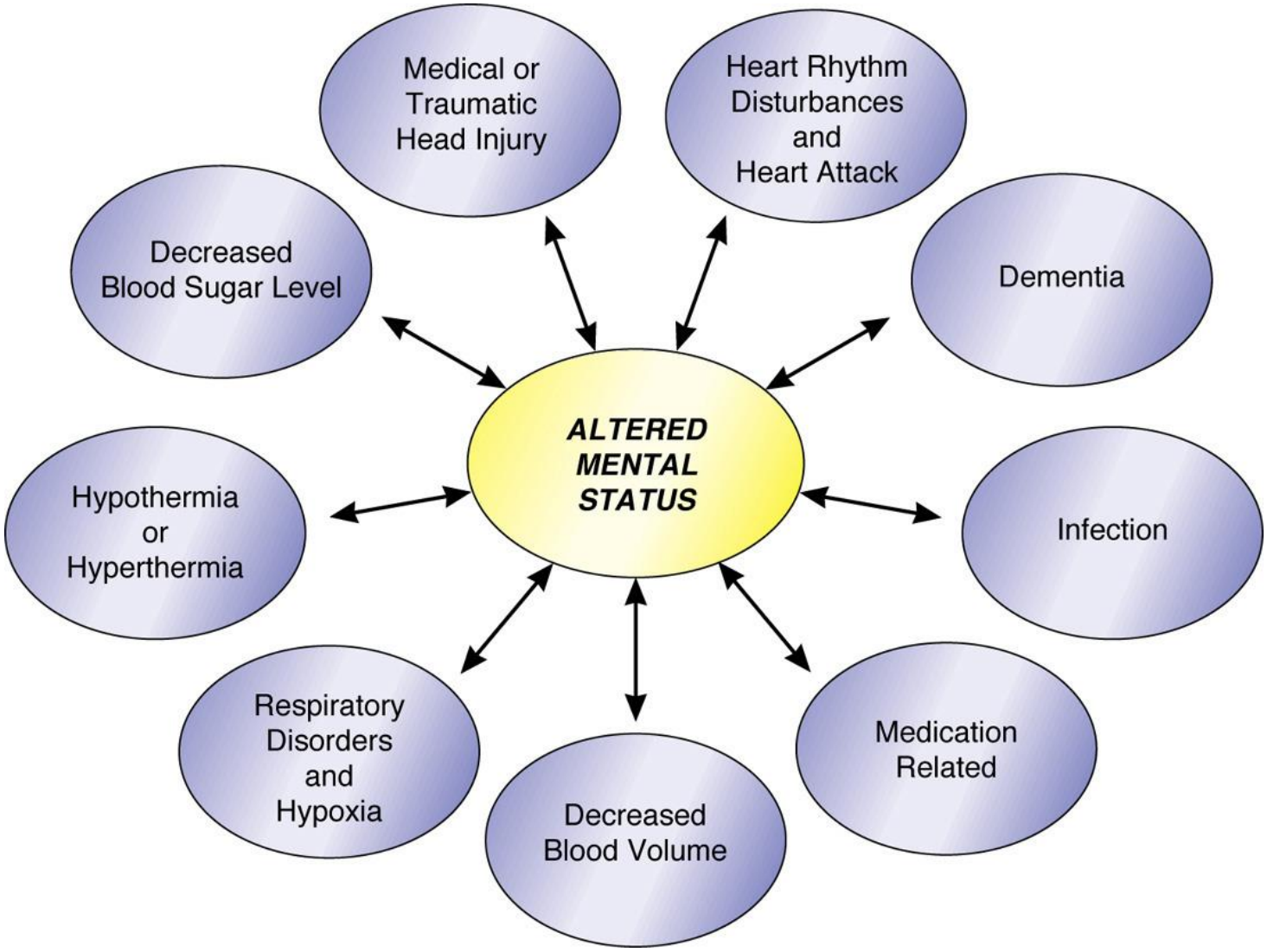
- Respiratory system
  - ↓ function
  - ↓ pulmonary capacity
    - ↓ elasticity
    - Thorax more rigid
  - ↓ vital capacity
  - ↑ residual volume
  - ↓ arterial oxygen pressure
  - ↑ alveolar diameter
  - No change in CO_2
  - Loss of cilia
  - ↓ cough reflex
  - ↑ pulmonary infections

Physiological Changes of Aging

- Cardiovascular system
  - Cardiac function ↓ with age
    - Non ischemic changes
    - CAD
  - ↓ ability to ↑ HR
  - ↓ compliance of ventricles
  - Prolonged contractions
  - ↓ response to catecholamines
  - ↓ CO, ↑ PVR
  - ↓ perfusion of organs
  - Myocardial hypertrophy, CAD, hemodynamic changes
    - May cause ischemia, CHF, arrhythmias
  - ↓ electrical cells in SA and AV nodes
    - Afib, Sick Sinus, Conduction disturbances, bradycardia

Physiological Changes of Aging

- Neurological system
  - Function ↓ due to organic causes
  - ↓ number of neurons
  - ↓ brain weight
  - ↓ cerebral blood flow
  - Alterations in NTM (Parkinson's, Alzheimer's, depression)
  - ↓ velocity of nerve conduction (PNS)
  - Toxic/metabolic factors
    - Medications
    - Electrolyte imbalances
    - Hypoglycemia
    - Acidosis/alkalosis
    - Hypoxia
    - Organ failure
    - Pneumonia/CHF
    - Arrhythmias


Medical or Traumatic Head Injury
Heart Rhythm Disturbances and Heart Attack
Decreased Blood Sugar Level
Dementia
ALTERED MENTAL STATUS
Hypothermia or Hyperthermia
Infection
Respiratory Disorders and Hypoxia
Medication Related
Decreased Blood Volume

Physiological Changes of Aging

- Integumentary system
  - ↓ elasticity
  - Thinner
  - ↓ skin turgor, wrinkles
  - ↓ sweat glands
  - Hair thinner, gray

Physiological Changes of Aging

- Immune system
  - ↓ primary antibody response
  - ↓ cellular immunity
  - ↑ abnormal immunoglobulins
  - ↑ risk of infection, auto immune disorders

Physiological Changes of Aging

- Musculoskeletal system
  - Muscle shrinkage
  - Calcification of muscles and ligaments
  - Thinning of intervertebral discs
  - Osteoporosis (↓ bone density)
  - Kyphosis (curvature of Thoracic spine)
  - ↓ balance
  - ↓ height

Physiological Changes of Aging

- Renal system
  - ↓ renal blood flow
  - ↓ GFR
  - ↓ renal mass
  - ↓ hepatic blood flow
  - ↓ free H_2O clearance
  - Na^+ retention
  - ↓ renal plasma flow
  - Prone to electrolyte imbalances and toxic manifestations

Physiological Changes of Aging

- Body weight and Mass
  - ↓ lean body mass
  - ↑ fat tissue
  - Fat soluble drugs → more drug/body weight and larger reservoir for accumulation of the drug
  - ↓ in total body water with an ↑ in retention of water soluble drugs

Physiological Changes of Aging

- Thermoregulation
  - Homeostasis begins to ↓ at 30 y/o
  - Risk of heat/cold injury
  - Contributing factors
    - Impaired CNS therefore ↓ vasoconstriction
    - ↓ metabolic rate
    - Poor peripheral circulation
    - Chronic illness

Physiological Changes of Aging

- Nutrition
  - ↓ intake of vitamins
  - ↓ appetite
  - ↓ taste
  - Psychological/social issues
  - Poor dentations and mastication
  - ↓ esophageal motility
  - Frequent hypochlorhydria (HCL in gastric juice deficiency)
  - ↓ intestinal secretions therefore ↓ absorption

Polypharmacy

- Multiple drug therapy in which there is a concurrent use of a number of drugs.
- Existence of multiple chronic disease in the elderly often leads to the use of multiple mediations.

Decreased Compliance

- Limited income
- Memory loss
- Limited mobility
- Sensory impairment
- Fear of toxicity
- Child-proof containers
- Duration of drug therapy

Increased Compliance

- Good patient-physician communication
- Belief that a disease or illness is serious
- Drug calendars
- Compliance counseling
- Blister packaging
- Pill boxes
- Transportation services to the pharmacy
- Ability to read
- Clear simple directions

Falls

- Present an especially serious problem.
- Represent the leading cause of accidental death among the elderly.
- May be intrinsic or extrinsic.
- The elderly should be encouraged to make their homes safe.

Lack of Mobility

- Poor nutrition
- Difficulty with elimination
- Atrophy of muscles
- Decreased bone density
- Decreased joint function
- Poor skin integrity
- Greater disposition for falls
- Loss of independence/confidence
- Depression
- Isolation and lack of a social network

Communications

- Normal physiological changes
  - Impaired vision
  - Impaired or loss of hearing
  - Altered sense of taste or smell
  - Lower sensitivity to touch
- Any of these conditions can affect your ability to communicate with the patient

Incontinence

- Common problem in the elderly
- Seriously impairs ability to function independently
- Continence requires
  - Anatomically correct GI/GU tract
  - Competent sphincter mechanism
  - Adequate cognition and mobility

Elimination

- Difficult can be a sign of a serious underlying condition
- Drugs that cause constipation
  - Opoiods
  - Anticholinergics
  - Cation containing drugs
  - Neutrally active drugs
  - Diuretics

Geriatrics

GENERAL PATHOPHYSIOLOGY, ASSESSMENT, AND MANAGEMENT

Pathophysiology

- The body becomes less efficient with age.
- The elderly often suffer from more than one illness or disease at a time.
- The existence of multiple chronic diseases in the elderly often leads to the use of multiple medications.

General Assessment

- Living situation
- Level of activity
- Network of social support
- Level of independence
- Medication history
- Sleep patterns
- Voiding history

General Health Assessment

- Breathing or respiratory problems
- Abdominal pain
- Nausea and vomiting
- Poor dental care
- Medical problems
- Medications
- Alcohol or drug abuse
- Psychological disorders
- Poverty
- Problems with shopping or cooking

Suicide

- People 65 or older (particularly men) have the highest rate of suicide of any other group
- Baby Boomers (born 46 – 64) have highest rate.
- Rates of 30 per 100,000

Substance Abuse

- Alcohol
  - Alcohol is the substance most commonly used by seniors.
  - 22% drink four or more times per week.
  - Signs of intoxication or prolonged use can be misattributed to aging, cognitive impairment or dementia.
  - Early-onset drinkers comprise approximately two-thirds of older problem drinkers, and late-onset drinkers comprise one-third.
- Prescription drug use
  - Is more prevalent among those 65 and over than among younger cohorts.
  - The prescription medications most commonly used are heart medication, blood pressure medication, pain relievers and benzodiazepines.
  - Approximately 20% of seniors use over-the-counter pain relievers in addition to their prescribed pain relievers.
  - Less than 1% of Canadian seniors report using illicit drugs.
- Men consume larger quantities of alcohol, but women may be at greater risk of becoming dependent on prescription medications.

Improving Communication

- Always introduce yourself
- Speak slowly, distinctly, respectfully
- Speak to patient first
- Speak face to face, at eye level
- Locate hearing aid or glasses
- Turn on room lights
- Show concern and empathy

Caring for the Elderly

- Encourage patients to express their feelings.
- Do not trivialize their fears.
- Avoid questions that are judgmental.
- Confirm what the patient says.
- Recall all that you have learned about communicating with the elderly.
- Assure patients that you understand that they are adults.

General Principles in Assessment

- Normal physiological changes and underlying acute or chronic illness may make evaluation of an ill or injured older person a challenge
- Besides the components of a normal physical assessment, consider special characteristics of older patients that can complicate the clinical evaluation

Factors Complicating Assessment

- Atypical Disease Presentation (A disorder in one organ system may lead to symptoms in another, especially one compromised by preexisting disease)
  - Delirium
  - Falls
  - Urinary Incontinence
  - Failure to thrive/functional decline
- The organ system usually associated with a particular symptom is less likely to be the source of that symptom in older individuals than in younger ones

Factors Complicating Assessment

- Geriatric patients are likely to suffer from concurrent illness
  - Chronic problems can make assessment for acute problems difficult
    - Signs or symptoms of chronic illness may be confused with signs or symptoms of an acute problem
- Aging may affect an individual's response to illness or injury
  - Pain may be diminished or absent

Factors Complicating Assessment

- Social and emotional factors may have greater impact on health than in any other age group
  - The patient fears losing autonomy
  - The patient fears the hospital environment
  - The patient has financial concerns about health care

The GEMS Diamond

- Remember the following when caring for older people:
  - Geriatric patients
  - Environmental assessment
  - Medical assessment
  - Social assessment

Assessment

- Communications
  - Confusion (old or new?)
  - Impairments (visual, auditory)
  - Minimal or vague history
  - Need for space

Assessment

- Neuro
  - Mentation – A/O X 3 or Norm
  - Cognitive
    - ST or LT memory
    - Problem solving/thought process
    - Object recognition
    - Dysphasia
  - Pupils (cataracts?)
  - Motor function
    - Gross motor (walking – with assistance?)
    - Fine motor (detailed activity)
    - Lateralizing signs
    - Gait disturbances
    - Paralysis
    - Balance

Assessment

- Sensory
  - Visual acuity
    - Double vision
    - Blurred
  - Hearing
  - Paresthesias
  - Temperature regulation
  - Tactile

History Taking

- Gathering a history from an older patient usually requires more time than with younger patients
- Pertinent HPI/MOI, PHx
- Obtain ADL's (activities of daily living)
- Patience is important
- Medications

ADL's

- Personal self-care
  - Feeding oneself
  - Bathing
  - Toileting
- Mobility
  - Able to move from bed to a standing position or to a chair
  - Able to walk (with or without assistive devices) or use a wheelchair
- Continence
  - Continent of urine: always or rarely incontinent, or frequently or usually continent
  - Continent of feces

Instrumental ADL's

- Within the home
  - Cooking
  - Housecleaning
  - Laundry
  - Management of medications
  - Management of telephone
  - Management of personal accounts
- Outside the home
  - Shopping for food, clothing, drugs, etc.
  - Use of transportation to travel to necessary and desired activities (e.g., physician's appointments, religious and social events)

Interview Techniques

- Always identify yourself
- Talk at eye level to ensure that the patient can see you as you speak
- Locate hearing aid, eyeglasses, and dentures (if needed)
- Turn on lights
- Speak slowly, distinctly, and respectfully
- Use the patient's surname, unless the patient requests otherwise
- Listen closely
- Be patient
- Preserve dignity
- Use gentleness

Physical Examination Considerations

- The patient may fatigue easily
- Patients commonly wear many layers of clothing for warmth, which may hamper the examination
- Respect the patient's modesty and need for privacy unless it interferes with patient care procedures
- Explain actions clearly before examining all patients, especially those with diminished sight

Physical Examination Considerations

- Be aware that the patient may minimize or deny symptoms through fear of being bedridden or institutionalized or losing self–sufficiency
- Try to distinguish symptoms of chronic disease from acute immediate problems

Physical Examination Considerations

- If time permits, evaluate the patient's immediate surroundings for:
  - Evidence of alcohol or medication use (e.g., insulin syringes, “vial of life,” medic–alert information)
  - Presence of food items
  - General condition of housing
  - Signs of adequate personal hygiene

Physical Examination Considerations

- If available, ask friends or family members about the patient's appearance and responsiveness now versus his or her normal appearance, responsiveness, and other characteristics
- Ensure gentle handling and adequate padding for patient comfort if ambulance transport is necessary

Physical Assessment

- Different pain thresholds
- Accessories (colostomy bags, etc)
- Dehydration
- Determine old or new
  - Deficits
  - Edema
  - LOC/cognitive function
  - VS
- Temp (body)
- Head to toe

Trauma Management Considerations

- Priorities of trauma care for older patients are similar to those for all trauma patients
- Special consideration should be given to the older patient's:
  - Cardiovascular system
  - Respiratory system
  - Renal system
  - Transport strategies should be given special consideration