

# *Gerontological Nursing* 115

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The icon ♦ denotes content of special importance for NCLEX®.

## GENERAL CONCEPTS OF AGING

### General Concepts

- A. Aging is an *individual* process.
- B. Most older persons view their health as a positive state.
- C. Coping with life has been successful because the person has “survived” to be old.
- D. “Normal” aging may be confused with disease process in aging persons.
  - 1. Illness is frequently misdiagnosed as “normal” aging.
  - 2. Because of “decline” due to “normal” aging, symptoms are neglected by family and medical personnel.
  - 3. Older persons underreport symptoms of illness because they interpret symptoms as “growing older.”
- E. Most older persons have more than one chronic disease.
- F. Chronological age is simply the number of years a person has lived.
- G. Functional age refers to the person’s ability to function effectively within society.

### Definitions Relating to Older Adults

- A. **Gerontology:** scientific study of the process of aging; examining the changes that occur as a person ages; study of the needs of the older adult.
- B. **Aging:** process of growing older; physiological changes in body systems as the person grows older; a biological/physiological process influenced by emotional state and social context.
- C. **Life span:** maximum life potential for survival of a species.
- D. **Life expectancy:** average number of years a person can expect to live
- E. **Frail old:** person 75 years of age or older with some impairment in ability to provide functional self-care.
- F. **Gerontological nursing:** use of the nursing process in caring for the physiological, psychological, and sociological needs of the aging person.

### CLASSIFICATION OF AGING

**Middle age:** 40–64 years of age.

**Young old:** 65–74 years of age.

**Old:** 75–84 years of age.

**Old old:** 85–100 years of age.

**Elite old:** Over 100.

### Demographics

- ◆ A. In 2030, the U.S. population will include > 35 million persons, 21% of the total over the age of 65 years.
  - 1. The post-World War II “baby boom” babies reached senior status around the year 2010.
  - 2. The number of persons over 65 years of age grew from 34 to 40 million between 1995 and 2010, an increase of nearly 20%.
- ◆ B. Average life expectancy in the United States hit a new high of 78.7 years in 2012, up from 77.6 years in 2003. Life expectancy increased for both men and women and for whites and blacks.
  - 1. For men, life expectancy increased from 74.3 years in 2000 to 76.2 in years in 2010.
  - 2. For women, life expectancy increased from 79.7 years to 81.1 years in 2010.
  - 3. White females live approximately 4.9 years longer than white males.
  - 4. African American females live approximately 9 years longer than African American males.
  - 5. White females live approximately 5.2 years longer than African American females.
- C. Persons reaching age 65 have an average life expectancy of an additional 18.8 years (20.0 years for females and 17.3 years for males).
- D. Increased life expectancy due to
  - 1. Advanced health care.
  - 2. Decreased infant/child mortality.
  - 3. Improved nutrition and sanitation.
  - 4. Increased infectious disease control.
- E. Five to 10% of older adults are alcohol abusers.

### Healthcare Costs

- A. Government spending for health care of older adults has increased nine-fold since 1970 and now tops \$900 billion.
  - 1. Healthcare services are used more by the aged person.
  - 2. The older the age of the person, the longer the stay in the hospital.
  - 3. Older persons personally pay just over 50% of the cost of their health care. The remainder is paid by Medicare, Medicaid, and insurance.
- B. The percentage of aged who live in nursing homes is 4–6%.
  - 1. Twenty-two percent over age 85 are in nursing homes.
  - 2. Before death, 20–27% of the aged use institutional care.
- ◆ C. Nursing home residents have an average of 3.9 diseases.
  - 1. Over 40% have more than one illness.
  - 2. Diseases may be multiple and chronic.

- 3. In 2009, nursing home population was 1.7 million. An upward trend is expected to continue for the next several decades.
- D. Eighteen percent of older adults die at home.
- E. Institutional placement most often results from a lack of social support as families become exhausted with caregiving.

### Morbidity and Mortality

- A. Since 2009 there were decreases in several leading causes of death. Stroke was down by almost 5%, heart disease 4%, cancer 2%, and accidents 2%.
- ◆ B. In 2010 the leading causes of death (in order of frequency) were: diseases of the heart, cancer, chronic lower respiratory diseases, cerebrovascular diseases (stroke), accidents (unintentional injuries), Alzheimer's disease, diabetes mellitus, nephritis, nephrotic syndrome and nephrosis (kidney disease), influenza and pneumonia, and intentional self-harm (suicide).
- ◆ C. Three out of four older adults die of heart disease, cancer, or stroke.
  - 1. Heart disease is leading cause of death in the United States, although it has declined since 1968.
  - 2. Death rates from cancer continue to rise, especially lung cancer.
  - 3. Death statistics for people in the 65 to 74 age group:
    - a. Heart disease accounted for 38% of deaths.
    - b. Cancer accounted for 30% of deaths.
- ◆ D. Leading chronic conditions for older adults.
  - 1. Arthritis.
  - 2. Hypertensive disease.
  - 3. Heart conditions.
  - 4. Hearing impairments.
  - 5. Visual impairments.
  - 6. Dementia.
- E. Objectives are to maintain vitality and independence of people age 65 and older.

### Theories on Aging

- A. Biological.
  - ◆ 1. **Cellular.** As cells are damaged, there is instability in the body.
    - ◆ a. Free radicals—oxidation releases chemicals that affect the cell membrane and DNA replication.
    - b. Cross-link—chemical bondage of elements that are generally separated.
    - c. Doubling/biological clock—a cell has a genetically predetermined number of replications (Hayflick's theory).

- d. Stress—homeostatic imbalance causes wear and tear on the organism.
- e. Error catastrophic—transcription errors in the RNA and DNA, leading to cell mutation, which is perpetuated.
- 2. **Immunity.** The thymus and bone marrow become less functional, so the body is less protected.
- ◆ B. Psychological.
  - 1. Adaptation to stress—genetic makeup and personal learning to deal with life crises.
  - 2. Life experience.
    - a. Disengagement—the person and society let go of each other.
    - b. Dependence—reliance on others for satisfaction of physical and emotional needs.
- C. Sociological.
  - 1. Cultural and role expectation—relates to adaptation/dependence when defining level of activity/behavior/wellness.
  - 2. Environment—toxins and pollutants.

## NURSING PROCESS IN CARING FOR THE AGED PERSON

### System Assessment

- ◆ A. Priority—determine individual's capacity for safe, functional self-care.
- ◆ B. Utilize multidimensional approach to provide basis for individualized care plan.
  - 1. Physiological.
    - a. Structural changes, normal and abnormal.
    - b. Signs of chronic illness.
    - c. Signs of medication effects.
  - 2. Psychological.
    - a. Mentation.
    - b. Motivation.
    - c. Needs.
  - 3. Sociological.
    - a. Usual and preferred living arrangements.
    - b. Status of social network and caregiving.
- C. Assess altered presentation of data.
  - 1. Complex interrelationship between aging and chronic and acute illness.
  - 2. Signs and symptoms of illness—atypical or lacking.

### System Implementation

- A. Perform and/or supervise needed care.
- B. Support level of self-functioning to maintain independence.

- ◆ C. Maintain safety precautions.
  1. Side rails when in bed but have been found not to prevent injury.
    - a. Watch for disorientation when client awakens.
    - b. Prevent falls due to decreased muscle mass and decreased balance.
    - c. Prevent orthostatic hypotension.
  2. Bed in low position when not giving direct client care.
  3. Handrails in bathrooms and halls.
  4. Uncluttered rooms and floors.
  5. Adequate, nonglare lighting.
  6. Restraints when necessary.
    - a. Older adults should only be restrained if they are in immediate physical danger or are hurting themselves or others, and then only for a short period of time.
    - b. Restraint alternatives should be implemented to keep the client or resident safe from falls (wall-to-wall carpeting, pads placed on the floor, use of chair and bed alarms, or continual observation).
- ◆ D. Provide psychosocial care.
  1. Encourage psychological activity to aid sense of normality.
  2. Encourage verbalization about the past.
  3. Assist in selecting and attending activities.
  4. Foster touching, which is a very useful tool in establishing trust.
  5. Provide dignity and the feeling of worth.
  6. Foster the wellness approach to life.
  7. Care plans should be collaborative with client.
- E. Teach family how to help/cope.

## THE AGING BODY

### Physiological Implications

- ◆ A. Physical changes.
  1. Decrease in physical strength and endurance.
  2. Decrease in muscular coordination.
  3. Tendency to gain weight; redistribution of fat, decreased subcutaneous tissue.
  4. Loss of pigment in hair and skin.
  5. Increased brittleness of the bones.
  6. Greater sensitivity to temperature changes with low tolerance to cold.
  7. Degenerative changes in the cardiovascular system.
  8. Decreased sensory faculties.
  9. Decreased resistance to infection, disease, and accidents.

- B. Intellectual impairment may be present.
  1. May develop in both cognitively intact and cognitively impaired older adults.
  2. The exact cause of delirium is not fully understood. Risk factors for delirium include: previous brain pathology, decreased ability to manage change, sensory impairment, presence of acute and chronic disease, changes in medication, translocation, cognitive impairment, sensory impairment or deprivation, comorbidity, depression, alcohol use, physical restraints, malnutrition, urinary catheterization, taking more than three medications, iatrogenic events.

### Psychological Implications

- A. Fears about losing job—focus for living.
- B. Competition with younger generation.
- C. Relationships change.
  1. Loss of nurturing functions within family.
  2. Role change within and outside of family.
- D. Loss of spouse, particularly females.
- E. Realization that person is not going to accomplish some of the things that he or she wanted to do may lead to depression.
- F. Physiological changes in body.
- G. Changes in body image.
- H. Illness.
- I. Fears of approaching old age and death.

### Developmental Tasks of Older Adults

- ◆ A. Maintains ego integrity versus despair (Erikson).
  1. Integrity results when an individual is satisfied with his or her own actions and lifestyle, feels life is meaningful, remains optimistic, and continues to grow.
  2. Despair results from the feeling that he or she has failed and that it is too late to change.
- B. Continues a meaningful life after retirement.
- C. Adjusts to income level.
- D. Makes satisfactory living arrangements with spouse.
  1. Adjusts to loss of spouse.
  2. Maintains social contact and responsibilities.
- E. Faces death realistically.
- F. Provides knowledge and wisdom to assist those at other developmental levels to grow and learn.
- G. Developmental process retrogresses.
  1. Increasing dependency.
  2. Concerns focus increasingly on self.
  3. Interests may narrow.
  4. Needs tangible evidence of affection.

## Sociological Implications

- ◆ A. Major fears of the aged.
  1. Physical and economic dependency.
  2. Chronic illness—high percentage of older adults have chronic problems.
  3. Loneliness.
  4. Boredom resulting from not being needed.
- ◆ B. Major problems of the aged.
  1. Economic deprivation.
    - a. Increased cost of living while income remains fixed.
    - b. Increased need for costly medical care.
    - c. Increased poverty rate for persons age 65 and older.
      - (1) Women, African Americans, Hispanics, and those who live alone are poorest.
      - (2) Major source of income is Social Security (35%).
  2. Chronic disease and disability.
  3. Loneliness and social isolation.
    - a. Suffer losses of friends.
    - b. Men die earlier, so many women are on their own.
      - (1) Five times more women than men are widowed.
      - (2) Half of older women are widows.
  4. Visual impairment.
  5. Organic brain changes.
    - a. Most people have memory impairment.
    - b. The change is gradual.
- C. Death in the life cycle.
  1. In U.S. culture, death is not considered a positive process.
  2. Older adults may see death as an end to suffering and loneliness.
  3. Death is not feared if the person has lived a long and fulfilled life, having completed all developmental tasks.
  4. Religious beliefs and/or philosophy of life are important.
- D. Older adults may provide knowledge and wisdom from their vast experiences, which can assist those at other developmental levels to grow and learn.

## Elder Abuse and Neglect

### Characteristics

- A. Over 1 million older adults are estimated to be abused or neglected.
- B. Seldom reported to authorities even though there is often a pattern of repetition.
- C. Typical victim.
  1. Older women with limitation in one activity of daily living (ADL).

- 2. Most are widowed.
- 3. Caucasian.
- 4. Low income.
- 5. Dependent on abuser for some aspect of care.
- D. Abused is associated with
  1. Substance abuse.
  2. Caregiver strain.
  3. Depression.
- ◆ E. Forms of elder abuse.
  1. Physical: intentionally inflicting injury or pain.
  2. Emotional: verbal harassment, intimidation, denigration, or isolation.
  3. Sexual abuse: any nonconsensual touching or sexual contact.
  4. Neglect: deteriorating health, dehydration, malnutrition, failure to provide food or services or care necessary to maintain health and safety; pressure ulcers, dirt, body odor, over- or undermedication.
  5. Financial: improper or unauthorized use of funds or property or power of attorney.
- F. Suspect abuse if client has unexplained injuries or conflicting stories from client and caregiver.
- G. All states have enacted elder abuse laws designed to protect older or vulnerable adults from abuse.
- ◆ H. Majority of states require nurses and other health-care providers to report cases of suspected elder abuse (to ombudsman).
  1. Standard for reporting is “reasonable” belief.
  2. Most states provide immunity from civil and criminal liability.
  3. Support suspicions with documentation and witnesses.

### ◆ Assessment

- A. Ask client and caregiver to explain injury.
  1. If client appears to be a victim, separate from caregiver and question.
  2. Follow up by documenting and report according to facility policy.
- B. Assess physical injuries for abuse.
  1. Multiple injuries or fractures.
  2. Bruises or burns.
  3. Sprains or dislocations (frequent falls).
- C. Assess for neglect (a form of abuse).
  1. Deteriorating health, failure to thrive.
  2. Dehydration or malnutrition.
  3. Pressure ulcers or contractures.
  4. Over- or undermedication.
  5. Excessive dirt or body odor.
- D. Question client about emotional or financial abuse.

### Implementation

- ◆ A. Report all cases of suspected elder abuse (to ombudsman) even if there is no direct

- evidence—just a “reasonable” belief that abuse is present.
- B. Promote family problem-solving actions to resolve situation.

### General Physiological Changes

- A. Cells.
  - 1. Fewer in number.
  - 2. Larger in size.
  - 3. Decreased total body fluid due to decreased intracellular fluid.
- B. Ear.
  - 1. Age-related changes can result in hearing loss.
  - ◆ 2. Presbycusis (sensorineural hearing loss).
    - a. Progressive hearing loss in inner ear.
    - b. High-frequency tones are lost first.
    - c. Sounds are distorted; difficulty understanding words when other noises are in the background.
    - d. Present in 30–40% of those over age 65.
    - e. No clear-cut cause.
    - f. May be due to insults from
      - (1) Noise exposures.
      - (2) Systemic or vascular disease.
      - (3) Nutrition.
      - (4) Ototoxic drugs.
      - (5) Pollution exposure.
    - 3. Tympanic membrane atrophic, sclerotic.
    - 4. Cerumen accumulates; may become impacted due to increased amount of keratin.
  - C. Eye.
    - ◆ 1. Presbyopia—vision impairment caused by diminished power of accommodation from loss of elasticity of lens.
    - 2. Pupil sphincter sclerosis with loss of light responsiveness.
    - 3. Cornea more spherical.
    - 4. Lens more opaque.
    - 5. Increased light perception threshold.
      - a. Adapt to darkness more slowly.
      - b. Difficulty seeing in dim light.
    - 6. Loss of accommodation.
    - 7. Decreased visual field; less peripheral vision.
    - 8. Decreased color discrimination on blue/green end of scale.
    - 9. Distorted depth perception.
    - 10. Glare intolerance.
    - 11. Reduced lacrimation.
  - ◆ D. Vital signs.
    - 1. Blood pressure increases with age; there is a higher incidence of hypertension in men than women up to age 70.

- 2. Heart rate remains unchanged.
- 3. Respiratory rate unchanged.
- 4. Core temperature unchanged.
- 5. Prone to hypothermia.
- E. Mood.
  - 1. Suffer multiple losses.
  - 2. Neurological changes.
  - 3. Loss of environment and interpersonal stimuli.
  - 4. Defense mechanisms are less effective.

### Baseline Admission Assessment

- A. Temperature.
  - 1. May be as low as 95°F or 35°C.
  - 2. A core temperature reading is the most accurate.
  - 3. Easily dehydrated with increased temperature.
- B. Pulse.
  - 1. Rate, rhythm, volume.
  - 2. Apical, radial, pedal, other sites as indicated by disorder.
- C. Respirations.
  - 1. Rate, rhythm, depth.
  - 2. Irregularity common.
- D. Arterial blood pressure.
  - 1. Lying, sitting, standing.
  - 2. Postural hypotension is common.
  - 3. Hypertension (160/95 mm Hg or greater).
- E. Weight—gradual loss in late years.
- F. Orientation level.
- G. Memory.
- H. Sleep pattern.
- I. Psychosocial adjustment.
  - 1. Depression.
  - 2. Paranoia.
  - 3. Loneliness.
  - 4. Increasing dependency.
  - 5. Concerns focus increasingly on self.
  - 6. Displays narrower interests.
- J. Immunization history.
- K. General appearance.
  - 1. Gray and thinning hair.
  - 2. Wrinkled, pigmented, and thin skin.
  - 3. Eyes slightly sunken.
  - 4. Ears/nose appear slightly larger.
  - 5. Responds more slowly to questions and directions.
  - 6. Normal aging—intake of new information and abstract reasoning is prolonged.
  - 7. Trunk thicker; thinner arms and legs.
  - 8. Gait slower and less steady.
  - 9. Slower movements.
  - 10. Possible slight tremor.
  - 11. Decreased flexion of spine/limbs.

## Neurological System

### ♦ Physiological Age Changes

- A. Decreased speed of nerve conduction.
- B. Delay in response and reaction time, especially with stress.
- C. Diminution of sensory faculties.
  - 1. Decreased vision.
  - 2. Loss of hearing.
  - 3. Diminished sense of smell and taste.
  - 4. Greater sensitivity to temperature changes with low tolerance to cold.

### Assessment

- A. Facial symmetry.
- B. Poor reflex reactions; slowed reaction time.
- ♦ C. Level of alertness—presence of organic brain changes.
  - 1. Not all persons become confused.
  - 2. Most people have some memory impairment; learning takes longer.
  - 3. Change is gradual.
  - 4. Potential for accidents, falls.
- ♦ D. Malnutrition—dehydration.
- ♦ E. Eyes: movement, clarity, presence of cataracts.
  - 1. Level of visual impairment.
  - 2. Pupils: equality, dilation, constriction.
  - 3. Visual acuity—decreases with age.
    - a. Do not test vision while client is facing window.
    - b. Use handheld chart.
    - c. Check condition of glasses.
  - 4. Dry eyes—tearing is decreased.
- F. Sensory deprivation—understimulation or sensory overload.
- G. Hypothermia.
- H. Hearing acuity.
  - 1. Hearing aid.
  - 2. Tinnitus.
  - 3. Cerumen in outer ear—refer to specialist.
- I. Presence of pain.
- J. Sleep disturbances.
- K. Depression.

### Implementation

- ♦ A. Maintain safety precautions.
  - 1. Evaluate reflex reactions to protect against accidents.
  - 2. Evaluate level of alertness.
- B. Monitor dietary intake and fluid intake.
- C. Provide adequate lighting to prevent falls.
  - 1. Natural lighting best.
  - 2. Avoid glare.
  - 3. Nightlight at all times in bathrooms, halls.
- D. Encourage sensory stimulation.
  - 1. Large-print books.
  - 2. Changes in environment.
  - 3. Colors client can see.

- E. Maintain reality orientation.

- 1. Calendars.
- 2. Clocks.
- 3. One-to-one visits.
- F. Keep client warm—prevent hypothermia.
- G. Check sedative or hypnotic abuse for poor sleep patterns.
- H. Check for antidepressant drugs.

## Cardiovascular System

### Physiological Age Changes

- A. Structural changes.
  - 1. Mitral and aortic valves become sclerotic and calcified.
  - 2. Decreased baroreceptor sensitivity.
  - 3. Mild fibrosis and calcification of valves.
- B. Cardiac output.
  - 1. Decreases 1% per year after age 20 due to decreased heart rate and decreased stroke volume.
  - 2. Force of contraction decreased.
  - 3. Ventricular wall thickens.
  - 4. Heart muscle decreased.
- ♦ C. Vessels lose elasticity.
  - 1. Less effective peripheral oxygenation.
  - 2. Position change from lying to sitting or sitting to standing can cause blood pressure to drop as much as 65 mm Hg.
- ♦ D. Increased peripheral vessel resistance.
  - 1. Blood pressure increases: systolic may normally be 170 mm Hg, diastolic may normally be 95 mm Hg.
  - 2. Smooth muscle in arteries is less responsive.
- E. Blood clotting increases.

### Assessment

- A. Peripheral circulation, pulses, color, warmth.
  - 1. Widened pulse pressure.
  - 2. Jugular vein distention.
- B. Circulatory status; orthostatic hypotension; hypertension.
  - 1. Dizziness; fainting.
  - 2. Auscultate heart sounds.
- C. Premature beats and dysrhythmias.
- D. Edema—decreased venous return.
- E. Activity intolerance.
  - 1. Weakness.
  - 2. Fatigue.
- F. Dyspnea.
- G. Transient ischemic attacks (TIAs).
- H. Anemia.

### Implementation

- A. Monitor vital signs—pulse, blood pressure.
  - 1. Apical pulse for 1 minute so premature beats are not missed.
  - 2. Take blood pressure in both arms.

- B. Monitor medications—digitalis, diuretics, etc.
- C. Maintain dietary restrictions (low salt).
- ◆ D. Change position slowly, especially from horizontal to vertical, to prevent hypotensive reaction.
- E. Maintain circulatory homeostasis.
  1. Encourage activity to increase circulatory stimulation; leg exercises, leg elevation while sitting.
  2. Provide warmth by applying blankets and clothing.
  3. Use gentle friction during bath.
  4. Avoid tight/restrictive clothing.

## Respiratory System

### Physiological Age Changes

- A. Respiratory muscles lose strength and become rigid.
- B. Ciliary activity decreases.
- C. Lungs lose elasticity (decreased breath sounds at base).
  1. Residual capacity increases.
  2. Larger on inspiration.
  3. Maximum breathing capacity decreases; depth of respirations decreases.
- D. Alveoli increase in size, reduce in number.
  1. Fewer capillaries at alveoli.
  2. Dilated and less elastic alveoli.
- ◆ E. Gas exchange is reduced.
  1. Arterial blood oxygen  $\text{PaO}_2$  decreases to 75 mm Hg at age 70.
  2. Arterial blood carbon dioxide  $\text{PaCO}_2$  unchanged.
- F. Coughing ability is reduced—less sensitive mechanism.
- G. Decline in immune response.
- H. More dependent on the diaphragm for breathing.
- I. System less responsive to hypoxia and hypercapnia (hypercarbia).
- J. Ability to maintain acid-base balance decreased.

### ◆ Assessment

- A. Chest excursion.
- B. Auscultate lungs/breath sounds.
- C. Quality of cough, if present; sputum.
- D. Rib cage deformity.
- E. Dyspnea, hypoxia, and hypercapnia (hypercarbia).
- F. Need for oxygen therapy.
- G. Activity intolerance.
- H. Anxiety.
- I. Rate and rhythm.

### Implementation

- ◆ A. Manage airway clearance.
  1. Clean nares if nasal passages are clogged.
  2. Postural drainage, if necessary.
- B. Monitor hydration status.
- ◆ C. Promote respiratory activity with exercises.
  1. Teach deep-breathing exercises.
  2. Forced expiration.
  3. Coughing.
- D. Monitor oxygen therapy.
  1. **Caution:** check for carbon dioxide narcosis.
  2. **Symptoms:** confusion, profuse perspiration, visual disturbance, muscle twitching, hypotension, cerebral dysfunction.

## Gastrointestinal System

### Physiological Age Changes

- A. Tooth loss.
  1. Periodontal disease is major cause of loss after 30 years of age.
  2. Other causes include poor dental health, poor nutrition.
  3. Dentine decreased.
  4. Gingival retraction.
- B. Taste sensation and thirst decrease.
  - ◆ 1. When there is diminished sense of thirst, less water is consumed and dehydration may result.
  - 2. Atrophy of up to 80% of taste buds.
  - 3. Less sensitivity of those on tip of tongue first: sweet and salt.
  - 4. Less sensitivity of those on sides of tongue later: salt, sour, bitter.
- C. Esophagus dilates, decreased motility, lower sphincter pressure decreases. Increased risk for aspiration.
- D. Stomach.
  1. Hunger sensations decrease.
  2. Secretion of hydrochloric acid decreases.
  3. Emptying time decreases.
- E. Peristalsis decreases and constipation is common.
- ◆ F. Absorption function is impaired.
  1. Body absorbs fewer nutrients due to reduced intestinal blood flow and atrophy of cells on absorbing surfaces.
  2. Decrease in gastric and pancreatic enzymes affects absorption.
- G. Hiatal hernia common (40% to 60% of elderly).
- H. Diverticulitis (40% over age 70).
- I. Liver.
  1. Fewer cells with decreased storage capacity.
  2. Decreased blood flow.
  3. Enzymes decrease.
  4. Ability to regenerate decreases.
  5. Hepatic protein synthesis is impaired.
- J. Pancreas.
  1. Impaired pancreatic reserve.
  2. Ducts become distended.
  3. Lipase production decreased.
- K. Decreased glucose tolerance.

**Assessment**

- A. Tooth loss—poor dentition, inadequate chewing, weak swallowing reflex.
- B. Condition of teeth, gums, buccal cavity.
- ◆ C. Dietary intake—malnutrition.
  - 1. Anorexia; nausea and vomiting.
  - 2. Regurgitation.
  - 3. Anemia.
- D. Indigestion, heartburn, pain, indications of possible hiatal hernia.
- ◆ E. Bowel problems.
  - 1. Constipation, fecal impaction.
  - 2. Fecal incontinence.
  - 3. Diarrhea.
- F. Drug toxicity.

**Implementation**

- A. Monitor for adequate nutrition; stimulate appetite.
  - 1. Small, frequent feedings of high quality.
  - 2. Attractive meals, wine if allowed.
  - 3. Female, 1600 calories; male, 2200 calories.
  - 4. Preferred foods if possible; ethnic choices.
- B. Lessen/prevent indigestion.
  - 1. Fowler's position for meals and keep upright 30 minutes after meals.
  - 2. Antacids contraindicated.
  - 3. Plan meals.
    - a. Smaller meals without gas formers.
    - b. Low fat.
    - c. Avoid foods that cause distress.
  - 4. Adequate fluids; monitor for dehydration.
- ◆ C. Prevent constipation.
  - 1. Ensure adequate bulk (fiber) and fluid in diet.
  - 2. Encourage activity.
  - 3. Ensure regular and adequate time for bowel movement.
  - 4. Provide privacy and normal positioning.
  - 5. Administer laxative or suppository if above not effective. Note that laxatives are often abused—use with caution.

**Genitourinary System****Physiological Age Changes**

- A. Kidneys.
  - 1. Smaller due to nephron atrophy.
  - 2. Renal blood flow decreases 50%.
  - 3. Glomerular filtration rate decreases 50%.
  - ◆ 4. Tubular function diminishes.
    - a. Less able to concentrate urine; lower specific gravity.
    - b. Proteinuria 1+ is common.
    - c. Blood urea nitrogen (BUN) increases to 21 mg.
  - 5. Renal threshold for glucose increases.

- 6. Potential for dehydration increases.
- 7. Excretion of toxins and drugs decreases.
- 8. Nocturia, frequency and urgency increase.
- ◆ B. Bladder.
  - 1. Muscle weakens.
  - 2. Capacity decreases to 200 mL or less, causing frequency.
  - 3. Emptying is more difficult, causing increased retention.
  - 4. Decreased sphincter control.
  - 5. Less control, increased stress incontinence.
- C. Age-related changes and associated clinical manifestations in male reproductive system.
  - ◆ 1. Prostate enlarges to some degree in 75% of men over age 65.
    - a. Enlarges with age—hypertrophy.
    - b. Difficulty initiating urine stream.
  - 2. Testicular volume decreases.
  - 3. Sperm count decreases.
  - 4. Seminal vesicles atrophy.
  - 5. Serum testosterone levels decrease with aging.
  - 6. Estrogen levels increase.
  - 7. Sexual response less intense.
  - 8. Longer to achieve erection.
  - 9. Erection maintained without ejaculation.
  - 10. Force of ejaculation decreased.
- D. Age-related changes and associated clinical manifestations in female reproductive system.
  - 1. Menopause occurs by mean age of 50.
  - 2. Perineal muscle weakens.
  - 3. Vulva atrophies.
  - 4. Vagina.
    - a. Mucous membrane becomes dryer.
    - b. Elasticity of tissue decreases, so surface is smooth.
    - c. Secretions become reduced, more alkaline.
    - d. Flora changes.
  - 5. Estradiol, prolactin, progesterone diminish.
  - 6. Size of ovaries, uterus, cervix, fallopian tubes, labia decreases.
  - 7. Elasticity of the pelvic area decreases.
  - 8. Breast tissue decreases.
  - 9. Intensity of sexual response decreases.
  - 10. Potential for vaginal infection increases.
  - 11. Potential for vaginal and uterine prolapse increases.
- E. Sexuality.
  - 1. Older people continue to be sexual beings with sexual needs.
  - 2. No particular age at which a person's sexual functioning ceases.
  - 3. Frequency of genital sexual behavior (intercourse) may tend to decline gradually in later

- years, but capacity for expression and enjoyment continue far into old age.
4. Risk of sexually transmitted diseases (STDs) and acquired immune deficiency syndrome (AIDS) continues with age.

#### ♦ Assessment

- A. Dehydration, fluid intake and output (I&O).
- B. Drug toxicity.
- C. Urine: appearance, color, odor.
- D. Bladder: frequency, urgency, hesitancy.
  1. Distention; incontinence.
  2. Males: difficulty initiating urine stream.
- E. Nonspecific signs: fever, vomiting, dysuria, lower abdominal discomfort, hematuria for possible asymptomatic urinary tract infection or bladder cancer.
- F. Sexuality—females.
  1. Vaginal irritation.
  2. Painful coitus.

#### Implementation

- ♦ A. Adequate fluid intake: 1500 mL minimum to 2500 mL daily.
- B. Incontinence prevention.
  1. Offer opportunity to void every 2 hours.
  2. Provide easy access to bathroom.
  3. Keep nightlight in bathroom to prevent falls.
  4. Schedule diuretics for maximum effect during daylight hours.
  5. Limit fluids near and at bedtime.
  6. Teach female clients Kegel exercises to strengthen perineal muscles.
  7. Avoid caffeine.
- C. Sexuality.
  1. Provide counseling if desired.
  2. Provide opportunity for desired sexual expression.
  3. Encourage touching and companionship, which are important for older people.

## Musculoskeletal System

#### Physiological Age Changes

- A. Contractures.
  1. Muscle mass decreases; regenerates slowly.
  2. Tendons shrink and sclerose.
- B. Range of motion of joints decreases.
  1. Lack of adequate joint motion, ankylosis.
  2. Slight flexion of joints.
- ♦ C. Mobility level.
  1. Ambulate with or without assistance or devices.
  2. Limitations to movement.
  3. Muscle strength lessens.
  4. Gait becomes unsteady.

- D. Kyphosis, such as postural changes with forward bend.
- E. Intervertebral discs narrow, height diminishes by 1–4 inches (2.5–10 cm).
- F. Trunk length decreases.
- G. Redistribution of subcutaneous fat to abdomen/hips.
- H. Bone changes.
  1. Loss of trabecular and cortical bone.
  2. Decreased density.
  3. Become brittle.
- I. Degeneration of the extrapyramidal tract.

#### ♦ Assessment

- A. Backward tilt of head (kyphosis).
- B. Hips, knees, and wrists more flexed.
- C. Decreased height (thinning discs).
- D. Decreased movement; impaired mobility.
- E. Muscle cramps and/or tremors.
- F. Pain.
- G. Decreased flexibility; stiff and enlarged joints.
- H. Frequent falls.

#### Implementation

- A. Ambulate within limitations.
- ♦ B. Alter position every 2 hours; align correctly.
- C. Prevent osteoporosis of long bones by providing exercises against resistance; calcium, vitamin D supplements.
- D. Provide active and passive exercises.
  1. Rest periods necessary.
  2. Paced throughout the day.
- E. Provide range-of-motion exercises to all joints three times a day.
- F. Educate family that allowing the client to be sedentary is not helpful.
- G. Encourage walking, which is best single exercise for the elderly, and swimming.
- H. Use assistive devices as needed.

## Integumentary System

#### Physiological Age Changes

- A. Skin is less effective as a barrier.
  1. Decreased protection from trauma.
  2. Less ability to retain water.
  3. Decreased temperature regulation.
  4. Decreased sensory receptors.
- B. Skin composition changes.
  1. Dryness (xerosis) due to decreased endocrine secretion.
  2. Loss of elastin.
  3. Increased vascular fragility.
  4. Thicker and more wrinkled on sun-exposed areas.
  5. Melanocyte cluster pigmentation.

- C. Sweat glands.
  - 1. Decreased number and size.
  - 2. Decreased function of sebaceous glands.
- D. Hair.
  - 1. General hair loss.
  - 2. Decreased melanin production.
  - 3. Facial hair increases in women, decreases in men, except in nose and ears—impacts sensory perception.
- E. Nails are more brittle and thick.

#### **Assessment**

- A. Skin.
  - 1. Temperature, degree of moisture, dryness.
  - 2. Intactness, open lesions, tears, pressure ulcers.
  - 3. Turgor, dehydration.
  - 4. Pigmentation alterations, potential cancer.
  - 5. Pruritus—dry skin most common cause.
- B. Bruises, scars.
- C. Condition of nails (hard and brittle).
  - 1. Presence of fungus.
  - 2. Overgrown or horny toenails; ingrown.
- D. Condition of hair.
- E. Infestations (scabies, lice).

#### **Implementation**

- A. Bathing can minimize dryness.
  - 1. Have client take complete bath only twice a week.
  - 2. Use superfatted soap or lotions to aid in moisturizing.
  - 3. Use tepid, not hot, water.
  - 4. Apply emollient (lanolin) to skin after bathing.
- B. Clip facial hairs for female clients if desired.
- C. Handle client gently to prevent skin tears.
- ♦ D. Monitor for skin tears, bruising, and pressure ulcers.
- E. Cut toenails unless contraindicated.
  - 1. Mycosis of nails.
  - 2. Certain medical/surgical conditions, such as diabetes, may require special order.

#### **Endocrine System**

##### **Physiological Age Changes**

- A. Production of most hormones is reduced.
- B. Parathyroid function and secretion are unchanged.
- C. Pituitary decreases in weight and changes in cell type proportion. Significance is undetermined.
  - 1. Growth hormone present, but in lower blood levels.
  - 2. Reduced adrenocorticotrophic hormone (ACTH), thyroid-stimulating hormone (TSH), follicle-stimulating hormone (FSH), and luteinizing hormone (LH) production.

- D. Reduced thyroid activity.
  - 1. Decreased basal metabolic rate.
  - 2. Reduced  $^{131}\text{I}$  uptake.
- E. Reduced aldosterone production.
- F. Reduced gonadal secretion of progesterone, estrogen, testosterone.

## **COMMON CONDITIONS IN THE AGED**

#### **Delirium**

*Definition:* A cognitive disorder that may be reversible as opposed to dementia, which is irreversible.

#### **Dementia\***

*Definition:* An organic condition resulting in an impairment of cognitive function manifested by long- and short-term memory loss with impaired judgment, abstract thinking, and behavior, resulting in self-care deficit.

#### **Characteristics**

- A. Etiology is unknown.
- B. Incidence is 5 million in the United States over age 65 (10% to 20% of the population).
- ♦ C. Leading cause of institutionalization in older people. Of 1.3 million nursing home residents, one-half to two-thirds have some form of cognitive impairment.
- D. A leading cause of death (120,000 annually).
- E. Cost to society is \$30 billion annually.
- F. Ten to twenty-one percent of dementias are pseudodementias—reversible—may be related to depression.
- ♦ G. Determine if false delirium is present.
- H. Irreversible dementia: gradual onset with a progressive course.
  - 1. Fifty to 70% are Alzheimer type (most common).
  - 2. Fifteen to 25% are multi-infarct or vascular type.
  - 3. Other types include Parkinson's disease, alcohol abuse, Huntington's chorea, intracranial mass.

#### **CAUSES OF FALSE DELIRIUM**

- Drug side effects: Most common are lithium, barbiturates, atropine, and bromides.
- Depression.
- Nutritional deficiency.
- Toxins: air pollution and alcohol.
- Heavy metals: lead and mercury.
- Diseases (e.g., metabolic disorders, multiple sclerosis, hyperthyroidism, anemia, hypoglycemia).

\* See Dementia in Chapter 14, Psychiatric Nursing.

**Diagnosis**

- ◆ A. Diagnostic criteria—must meet one criterion listed below.
  1. Sufficiently severe loss of intellectual abilities that interferes with social or occupational functioning.
  2. Memory impairment, usually of short-term memory.
  3. Impairment of abstract thinking or impaired judgment; disturbance of higher cortical function or personality change.
  4. Presence of a specific organic etiology or presumed presence.
- B. Onset slow, insidious, unrelated to specific situation.
- C. Gradual degeneration.
- D. Mental status examination shows poor reality orientation, confusion, lack of understanding, etc.
- ◆ E. History reveals symptoms.
  1. Onset slow; progressive decline.
  2. Personality changes, withdrawn.
  3. Confusion noted by others but not by client.
  4. Early in the disease will attempt to find the right answer; later will not understand question.
  5. Unaware of memory loss.
    - a. Begins with recent memory loss.
    - b. Later, there are problems with coding and retrieving information.
  6. Oblivious to failures.
- F. Possible predisposing factors: genetic, familial history of Down syndrome, enzyme deficiency, immune system deficiency, aluminum toxicity, acetylcholine (a neurotransmitter) deficiency.

**Assessment**

- A. Adequate physical health; usually not affected.
- B. Intellectual impairment; complete a mini-mental assessment tool.
  1. Alertness.
  2. Orientation.
  3. Appropriate responses to questions.
  4. Aphasia, may produce words but not sentences.
  5. Does not recognize staff or family.
- C. Behavior.
  1. Performance of grooming and hygiene tasks gradually diminishes.
  2. Cooperative.
  3. Distracted.
  4. Agitated.
  5. Paranoid, delusions.
  6. Restless.
  7. Wandering behavior (frequently at sundown).

**D. Motor responses.**

1. Stability of gait (motor ability declines).
2. Functional position of limbs/joints.

**E. Condition of skin.**

- F. Bowel and bladder function—incontinent.

**Implementation**

- ◆ A. Provide safe environment to prevent falls, unsafe wandering.
- ◆ B. Monitor medications.
  1. Give lowest dose of antipsychotic (one-fourth the dose of a middle-aged adult).
  2. Evaluate effect of antipsychotic, antidepressant, antianxiety medication.
- ◆ C. Use clear, verbal communication techniques.
  1. Short words, simple sentences, verbs, and nouns.
  2. Call client by name and identify yourself.
  3. Speak slowly, clearly; wait for response.
  4. Ask only one question, give one direction at a time.
  5. Repeat, do not rephrase.
- D. Use nonverbal communication.
  1. Approach in a calm, friendly manner.
  2. Use gestures, move slowly.
  3. Stand directly in front of client; maintain eye contact.
  4. Move or walk with client; do not try to stop.
  5. Listen actively; show interest.
  6. Chart all phrases and nonverbal techniques used and use those that “work.”
- E. Monitor activities of daily living.
  - ◆ 1. Orient to environment and activity on a “here and now” basis.
  - ◆ 2. Provide consistent routine with activities.
  - 3. Remind how to perform self-care activities as dressing, eating, toileting.
  - 4. Avoid activities that tax the memory.
  - 5. Give tasks that distract and occupy, such as listening to music, coloring, watching TV.
- F. Assess suicide risk in early stages.
- G. Maintain the client’s physical activity within limits of safety.
  1. Walk outside if grounds are “wander protected” (fenced, alarmed) or if accompanied.
  2. Dance.
  3. Exercises with simple commands.
  4. Active games.
  5. Balance activities.
  6. Activities of daily living.
- H. Provide mental stimulation.
  - ◆ 1. Simple hobbies.
  - 2. One-to-one contact.
  - 3. Reality orientation.
  - 4. Play word or number games.

- ◆ I. Use consistent staff to provide care; change is frightening.
- J. Encourage self-care; give cues. Pantomime brushing teeth instead of brushing client's teeth.
- K. Put families in touch with support groups such as Alzheimer's Disease and Related Disorders Association, Inc. (ADRDA) chapters.

## Depression

*Definition:* A mood disorder dominated by sadness, gloomy attitude, hopelessness, and a lack of pleasure in life.

### Characteristics

- ◆ A. Seven to eleven percent of community-based older adults are depressed; 1% to 2% suffer from major depression.
- B. Most commonly treated disorder in older adults.
- C. Fifteen percent of all older adults suffer from this problem (double the normal population).
- D. Often mistaken for "hardening of the arteries" or other type of dementia.
- ◆ E. Depression leads to other major problems, increasing the susceptibility to disease.
  1. Undernourishment.
  2. Dehydration.
  3. Inactivity.
  4. Self-neglect.
  5. Isolation.

### Assessment

- A. History of depression.
  1. Loss of interest in life.
  2. Sense of hopelessness and sadness.
  3. Difficulty sleeping.
  4. Weight loss due to loss of interest in food.
  5. Fatigue.
  6. Reduced sexual desire.
- B. History of multiple losses.
  1. Death of a spouse, friends.
  2. Loss of job-related challenges and focus.
  3. Loss of normal physical functioning.
  4. Loss of social interaction and contacts; isolation.
  5. Loss of self-esteem.
- C. Complaints of memory loss.
- D. Complaints of physical pain.
- E. Drug side effects.
- ◆ F. Potential suicide risk—high incidence in the older population.
  1. With depression comes high risk for suicide.
  2. The suicide rate for 75- to 85-year-old white males is 53 per 100,000.
  3. Most significant risk factor is recent loss of major relationship.

- 4. Assess for specific cues related to suicide.
  - a. Hopeless talk about the future.
  - b. Hints: "Things will change soon."
  - c. Relates plan for ending life.
  - d. Gives away belongings.

### Implementation

- ◆ A. Implement safety precautions for suicide risk (see Suicide section in Chapter 14, Psychiatric Nursing).
- B. Establish daily activities to reinforce positive experiences.
  1. Give some area of control or power to person.
  2. Provide variation in daily schedule but not too many changes, as change is anxiety producing for the elderly.
- C. See specific nursing interventions for depression in Chapter 14, Psychiatric Nursing.

## Hip (Femoral Neck) Fracture

*Definition:* Fracture at femoral neck can result in avascular necrosis: death of the bone due to insufficient blood supply. Occurs most frequently in elderly women.

### Characteristics

- A. Usually results from a fall.
- B. Directly related to loss of bone strength due to osteoporosis.
- ◆ C. People over age 65 account for 87% of hip fracture cases.
  1. More than 250,000 occur each year.
  2. Most are women.
- D. Fourteen to 36% of older clients with complications die.
- E. More than 25% of survivors lose their ability to walk independently.
- F. Sixty percent do not regain their preinjury level of ambulation.
- G. Personal and social consequences for older adults.
  1. Restriction of daily activities can result in depression, complications, etc.
  2. Hospitalization adds financial burden, dependence.

### Assessment

- A. Assess for pain, tenderness, or muscle spasm over fracture site or in groin.
- B. Assess for lateral rotation and shortening of leg with minimal deformity.
- C. Degree of disability.
- D. Elimination problems.
- E. Nutritional status.
- F. Emotional reaction to immobility.
- G. Degree of support from family.

**Implementation**

- A. Operative procedure.
  - 1. Femoral head replacement—surgical fixation with nails, pins, or screws.
  - 2. Occasional total hip replacement.
- B. Preoperative care.
  - ◆ 1. Provide care such as that given to clients in skin traction.
    - a. Buck's extension may be applied to relieve muscle spasm at the fracture site.
    - b. Movement of fracture fragments will increase muscle spasms and pain.
  - 2. Observe for elimination regularity.
- ◆ 3. Teach coughing and deep-breathing. Encourage isometric exercises and use of overhead trapeze.
- 4. Maintain proper positioning—splinting injured leg with pillows on unaffected side.
- 5. Assist client with eating; nourishing diet is essential for healing process.
- ◆ C. Postoperative care.
  - 1. Turn client from unaffected side to back as routine, turn every 2 hours; a physician's order is required to turn from side to side.
  - 2. Turn client with hip prosthesis by always placing pillows between legs to avoid adduction.
  - 3. Elevate head; may be limited to 30 to 40 degrees to avoid acute hip flexion.
  - 4. Introduce quadriceps and gluteal setting muscle exercises; encourage use of overhead trapeze for assistance in moving.
  - 5. Take measures to protect client when moving from bed to chair (client not to bear weight on affected leg).
  - 6. Provide routine postoperative measures to ensure client's comfort.
  - 7. Take measures as necessary to prevent complications.
    - a. Avascular necrosis of femoral head.
    - b. Nonunion.
    - c. Pin complications.
    - d. Dislocation of prosthesis.
    - e. Infection.

**Urinary Incontinence**

**Definition:** Involuntary release of urine of such severity as to have social and/or hygienic consequences.

**Characteristics**

- A. Ten million adults are incontinent—over half the residents of nursing homes and one-third of elderly living at home are affected.
- B. Prevalence rises with age.
- C. This condition is not a normal consequence of aging; it is a symptom signaling the presence of other problems.

## ◆ D. Types.

- 1. **Stress incontinence:** result of sudden increase in intra-abdominal pressure that pushes urine out of the bladder.
- 2. **Urge incontinence:** leakage of urine before one reaches the toilet usually caused by uncontrolled contraction of the bladder.
- 3. **Overflow incontinence:** constant dribble of urine results when bladder is not completely emptied during voiding.
- 4. **Functional incontinence:** nonorganic; impaired mobility, depression, and dementia can prevent client from reaching bathroom.

**Assessment**

- A. Assess pattern of problem—see types of incontinence as noted above.
  - 1. Decreased bladder tone/volume.
  - 2. Muscle tone—urgency and frequency.
- B. Presence of other problems, disease states, or change in physical health.
  - 1. Congestive heart failure (CHF).
  - 2. Urinary tract infection.
  - 3. Pneumonia.
  - 4. Stool impaction.
- C. Effects of medication(s).
- D. Smoking.
- E. Environmental problems.
  - 1. Access to toilet.
  - 2. Restraints.
  - 3. Privacy.
  - 4. Response of staff/family.
- F. Skin condition.
- G. Emotional coping in relation to the problem.

**Implementation**

- ◆ A. Monitor medical treatment.
  - 1. Pelvic floor muscle exercises (Kegel exercises) and behavioral training (biofeedback).
  - 2. Drug therapy.
    - a. Anticholinergic drugs: Pro-Banthine (propantheline).
    - b. Antispasmodic drugs: Ditropan (oxybutynin)—inhibit bladder contractions.
  - 3. Perform surgery to strengthen pelvic muscles, repair a damaged urethra, and/or remove an obstruction.
- B. Provide appropriate skin care.
- C. Establish toileting schedule.
  - 1. Easy access.
  - 2. Appropriate clothing—client's own, if possible.
- ◆ D. Assist client to learn Kegel exercises.
  - 1. Will help to control stress and urge incontinence.

2. Steps are to contract pubococcygeus muscle, hold contraction for 10 seconds, and relax for 10 seconds. Work up to 25 repetitions 3 times per day.
- E. Provide protection plan for accidents.
  1. Accidents are embarrassing and often limit excursions and social activities.
  2. Prevent problems and avoid disrupting client's life.
- F. Devise ways to build client's self-esteem.
  1. Positive reinforcement.
  2. Plan activities that client can enjoy.

## **Impaired Mobility/Disability**

*Definition:* Older adults can suffer impaired mobility and disability due to decreased physical function and/or accidents.

### **Characteristics**

- A. Nearly 23% of older people living in the community have some degree of disability.
  1. Those 85 and older constitute a disproportionate share of those who are dependent in physical functioning.
  2. Those 85 and older constitute 27% of those who have impaired mobility.
- ◆ B. Impaired mobility can lead to many subsequent problems: depression, negative self-image, dependent behavior, loss of independence, etc.
- C. Effects of disability.
  1. Impact on the individual's body image.
    - a. Physical appearance.
    - b. Bodily sensations.
  2. Behavior during reaction period.
    - a. Appears confused and disorganized.
    - b. Denies disability exists.
    - c. Overreacts to situations and physical condition.
    - d. Assumes false-positive attitude.
    - e. Becomes self-centered.
    - f. Becomes depressed.
    - g. Mourns loss of function or body part.
  3. Adaptation and adjustment.
    - a. Revises body image by modifying former picture of self.
    - b. Reorganizes values.
    - c. Accepts degree of dependency.
    - d. Accepts limitations imposed by disability.
    - e. Begins to develop realistic goals.

### **Assessment**

- A. Specific source of disability or impaired mobility.
- B. Presence of accompanying disease state: arthritis, stroke, dementia, diabetes, CHF, chronic obstructive pulmonary disease (COPD).

- C. Strength and function of limbs and joints.
- D. Stability of gait.
- E. Presence of pain.
- F. Condition of skin.
- G. Drug effects—sedation, incontinence, orthostatic hypotension.
- H. Motivation for rehabilitation.
- I. Nutritional status.
- J. History of falls.

### **Implementation**

- A. Develop nursing care plan to meet client's needs.
- B. Focus on disability or impaired mobility.
- C. Establish supportive relationship.
- ◆ D. Teach activities of daily living.
  1. Activities that must be accomplished each day for the individual to care for own needs and be as independent as possible.
  2. Ascertain best assistive aid for client.
  3. Demonstrate and encourage individual to practice.
  4. Increase activities as individual progresses and is able to assume activity.
  5. Give positive reinforcement for all effort expended.
- E. Prevent deformities and complications.
  - ◆ 1. Turn and position in good alignment.
    - a. Prevent contractures.
    - b. Stimulate circulation.
    - c. Prevent thrombophlebitis.
    - d. Prevent pressure ulcers.
  2. Prevent edema of extremities.
  3. Promote lung expansion.

### **◆ Types of Exercise for Rehabilitation**

- A. Passive.
  1. Carried out by the therapist or nurse without assistance from client.
  2. Purpose—retain as much joint range of motion as possible, and maintain circulation.
- B. Active assistive.
  1. Carried out by the client with assistance of therapist or nurse.
  2. Purpose—encourage normal muscle function.
- C. Active.
  1. Accomplished by the individual without assistance.
  2. Purpose—increase muscle strength.
- D. Resistive.
  1. Active exercise carried out by the individual working against resistance produced by manual or mechanical means.
  2. Purpose—provide resistance to increase muscle power.

- E. Isometric or muscle setting.
  - 1. Performed by the individual without assistance.
  - 2. Purpose—maintain strength in a muscle when a joint is immobilized.
- F. Range of motion (ROM).
  - 1. Movement of a joint through its full range in all appropriate planes.
  - 2. Purpose—maintain joint mobility and increase maximal motion of a joint.
  - 3. Nursing care.
    - a. Assess general condition of client.
    - b. Establish extent of ROM before present condition.
    - c. Discontinue ROM at point of pain.
  - 4. Deterrents to ROM exercises: fear and pain.

**Use of Aids/Devices**

- ◆ A. Cane.
  - 1. Purpose.
    - a. Provide greater stability and speed when walking.
    - b. Relieve pressure on weight-bearing joints.
    - c. Provide force to push or pull body forward.
  - 2. Safety factors.
    - a. Handle at level of greater trochanter.
    - b. Elbow flexed at 25- to 30-degree angle.
    - c. Lightweight material.
    - d. Rubber suction tip.
  - 3. Techniques for walking with cane.
    - a. Hold cane close to the body.
    - b. Hold in hand on unaffected side.
    - c. Move cane at same time as affected leg.
- B. Crutches.
  - 1. Purpose—provide support during ambulating when lower extremities unable to support body weight.
  - 2. Safety factors.
    - a. Measure 1½ to 2 inches (3.8 cm to 5.08 cm) from axillary fold to floor (4 inches [10.16 cm] in front and 6 inches [15.24 cm] to side of toes).
    - b. Hand piece adjusted to allow 30-degree elbow flexion.
    - c. Rubber suction tips on crutches.
    - d. Well-fitting shoes with nonslip soles.
  - 3. See gait sequence on page 381.
- C. Prosthesis—artificial replacement for a missing body part.
- D. Brace—support that protects or supports weakened muscles.

**Infections in Older Adults**

- A. Older clients are more susceptible to infection—diminished resistance.
- B. Important to recognize high-risk clients.

- C. Diseases that contribute to high risk.
  - 1. Diabetes mellitus.
  - 2. CHF.
  - 3. Malignancy—double risk due to chemotherapy depressing the immune system.
  - 4. Renal failure.
- ◆ D. Conditions that make clients prone to infection.
  - 1. Dehydration.
    - a. Fluid depletion—skin more penetrable by pathogens.
    - b. Thick mucosal secretions—coughing more difficult.
  - 2. Increased urinary retention.
    - a. Monitor fluid intake.
    - b. 1500 to 2500 mL daily.
  - 3. Bed confinement.
    - a. Increases risk of renal infection by causing urine backflow through ureters up into kidneys.
    - b. Voiding while bedridden increases pressure on bladder, adds to risk of urinary tract infection.
    - c. To minimize risk, assist client to sit or stand when voiding, if possible.
  - 4. Poor skin turgor; less effective as barrier to trauma.
    - a. Less resistance to friction increases risk of pressure ulcers.
    - b. Maintaining nutrition and fluid intake lessens risk.
  - 5. Bowel problems lower resistance.
    - a. Constipation may lead to intestinal obstruction and perforation.
    - b. Prevention—fiber-rich fruits and vegetables, whole-grain breads and cereals.
  - E. When infection develops.
    - ◆ 1. Older person may not show a fever (baseline may be low so slight increase is not noted).
      - a. Take baseline temperature.
      - b. Lower temperature only when it goes above 102 to 104°F (38.8 to 40°C). (Fever inhibits bacterial and viral growth.)
      - c. Evaluation of antibiotic therapy (fever decreases) is more accurate without antipyretic.
    - 2. Older clients are more susceptible to adverse effects of antibiotics.
      - a. Hearing loss—especially with isoniazid and aminoglycosides.
      - b. Vertigo with aminoglycosides.
      - c. Monitor BUN and creatinine levels to check for nephrotoxicity: Garamycin (gentamycin), Tobrex (tobramycin), and Vancocin (vancomycin).

- d. Diarrhea: Omnipen (ampicillin), Pan-mycin (tetracycline), Chloromycetin (chloramphenicol)—leads to electrolyte imbalance.
- e. Increased risk of yeast infection.

## COMMON PROBLEMS FROM IMMOBILITY

### Pressure Ulcers

*Definition:* Localized areas of necrosis of skin and subcutaneous tissue due to pressure or friction.

#### Characteristics

- A. Cause—pressure or friction exerted on skin and subcutaneous tissue by bony prominence and the object on which body rests or against which it rubs.
- B. Predisposing factors.
  - 1. Malnutrition.
  - 2. Anemia.
  - 3. Hypoproteinemia.
  - 4. Vitamin deficiency.
  - 5. Edema.
- ◆ C. Common sites: bony prominences of body such as sacrum, greater trochanter, heels, elbows, etc.

#### Assessment

- A. Stage of ulcer.
- B. Identify if infection is associated with pressure ulcer.
- C. Effectiveness of ulcer treatment.
- D. Healing process of the ulcer.
- E. Other bony prominences for potential formation of pressure ulcer.
- F. Presence of conditions that inhibit wound healing.

#### Implementation

- ◆ A. Prevention.
  - 1. Relieve or remove pressure.
  - 2. Avoid friction and shearing.
  - 3. Stimulate circulation.
  - 4. Keep skin dry.
- ◆ B. Positioning.
  - 1. Encourage client to remain active.
  - 2. Change position frequently—every 1–2 hours.
- C. Maintain good skin hygiene; inspect frequently.
- D. Provide for active and/or passive exercises.
- E. Use alternating-air-pressure mattress, etc.
- F. Avoid massaging bony prominences.
- G. Provide for adequate nutritional and fluid intake.

### External Rotation of Hip

*Definition:* Outward rotation of hip joint.

#### Characteristics

- A. Cause—lying for long periods of time on back without support to hips.
- B. Incorrect positioning in bed.

#### Implementation

- ◆ A. Trochanter roll extending from crest of ileum to midthigh when positioned on back.
- B. Frequent change of position.
- C. Proper positioning.

### Footdrop

*Definition:* Tendency for foot to plantar flex.

#### Characteristics

- ◆ A. Causes.
  - 1. Prolonged bed rest.
  - 2. Lack of exercise.
  - 3. Weight of bed clothing forcing toes into plantar flexion.
- B. Complications.
  - 1. Individual walks on his or her toes without touching heel on ground.
  - 2. Unable to walk.

#### Implementation

- ◆ A. Prevention.
  - 1. Position feet against footboard.
  - 2. Use foot cradle to keep weight of top linen off toes.
  - 3. Provide ROM exercises.
- B. Check that soles of feet are against footboard to prevent permanent footdrop.

### Contractures

*Definition:* Abnormal shortening of muscle, tendon, or ligament so joint cannot function properly.

#### Characteristics

- A. Cause—improper alignment, lack of movement.
- B. Result is decrease in mobility and joint movement.

#### Implementation

- ◆ A. Proper alignment at all times.
  - 1. Use pillows.
  - 2. Provide supportive splints.
- B. Provide for ROM exercises.

### Bladder Dysfunction

*Definition:* When an individual is unable to void and the reflex act of micturition (urination) cannot occur.

**Characteristics**

- A. Causes.
  - 1. Disease process (urinary tract infection).
  - 2. Lack of innervation.
  - 3. Lack of motivation.
- B. Treatment involves bladder retraining, surgery, drugs.

**Implementation**

- A. Bladder training—purpose.
  - 1. Prevent urinary tract infection and preserve renal function.
  - 2. Keep individual dry and odor free.
  - 3. Help individual maintain social acceptance.
- ◆ B. Procedure.
  - 1. Set up specific time to empty bladder.
  - 2. Give measured amounts of fluids.
  - 3. Position in normal voiding position.
  - 4. Instruct client on how to perform Credé maneuver on the bladder.
  - 5. Keep record of amount and time of intake and output.
  - 6. Encourage client to wear own clothing, particularly underwear.
  - 7. Provide protective underwear when needed.

**Bowel Dysfunction**

*Definition:* Normal elimination does not occur due to a structural problem or disease state.

**Characteristics**

- A. Cause.
  - 1. Disease process.
  - 2. Inadequate intake.
  - 3. Poor prior habits.
- B. Treatment involves surgery, dietary modifications, or drugs.

**Implementation**

- A. Identify purpose of bowel training.
  - 1. Develop regular bowel habits.
  - 2. Prevent fecal incontinence, impaction, and/or irregularity.
- ◆ B. Implement nursing procedure.
  - 1. Establish specific time.
  - 2. Provide for adequate roughage and fluid intake.
  - 3. Use normal posture.
  - 4. Instruct to bear down and contract abdominal muscles.
  - 5. Provide privacy and time.
  - 6. Provide exercise.
  - 7. Provide protective underwear when needed.

**Hypostatic Pneumonia**

*Definition:* Inflammatory process in which alveoli fill with exudates caused by a stagnation of blood flow in the dependent portion of the lungs.

**Characteristics**

- A. Incidence.
  - 1. Very young, very old.
  - 2. Debilitated.
  - 3. Immobile (prolonged periods of bed rest).
- B. Cause—stasis of secretions in lungs.

**Implementation**

- ◆ A. Prevention.
  - 1. Assess lung function.
  - 2. Encourage deep-breathing, coughing.
  - 3. Turn every 2 hours.
  - 4. Out of bed (OOB)—chair when possible.
  - 5. Ensure adequate hydration.
- B. Provide for postural drainage, if indicated.
- C. Administer oxygen, as ordered.
- D. Monitor antibiotic therapy.

**PROBLEM AREAS FOR OLDER ADULT CLIENTS****Sensory Impairment**

- A. Elderly experience loss of function in the senses.
  - 1. Ability to taste declines after age 40; taste buds are fewer in number and there is less saliva flow.
  - 2. Ability to smell declines.
  - 3. Hearing fades, especially in high-frequency ranges.
  - 4. Regulation of body temperature is less efficient.
- B. Major diseases or degeneration of organs occurs.
  - ◆ 1. Vision loss—see Chapter 8 pages 209–213 for nursing implications.
    - a. Glaucoma—increased pressure causes damage to optic nerve, leading to blindness.
    - b. Cataracts—clouding of the lens leading to blurred vision.
    - c. Retinal detachment.
    - d. Macular degeneration—loss of central vision due to degeneration of macula.
  - ◆ 2. Hearing loss—see Chapter 8 pages 213–214 for nursing implications.
    - a. Otosclerosis requiring a stapedectomy.
    - b. Hearing loss due to accumulation of earwax—requires periodic irrigation of auditory canal.

## Nutrition

- A. Physiological requirements do change (decrease) with age.
- ◆ 1. Nutrition intake must meet two major demands.
  - a. Normal structural repair.
  - b. Energy production for functional needs.
- 2. Met by protein and amino acids and adequate calorie intake.
- ◆ B. Many older adults are deficient in nutrients, especially protein, B vitamins, vitamins A and C, iron, and calcium.
  - 1. Change in diet is often responsible.
    - a. Senses of taste and smell decrease, thus less conscious of hunger.
    - b. Teeth in poor condition or dentures don't work properly.
    - c. Physical disabilities or lack of mobility; unable to buy groceries.
    - d. Loss of interest in eating.
    - e. Limited income affects buying nutritious food.
  - 2. System cannot assimilate nutrients as well as when younger.
    - a. Reduced hydrochloric acid, reduced stomach activity.
    - b. Decreased salivary flow.
- C. Health status affects nutritional state.
  - 1. Chronic diseases: heart disease, cancer, diabetes, gastrointestinal problems, etc.
  - 2. Drugs: antacids, antidepressants, anticonvulsants, cathartics, diuretics, antimicrobials, etc.
- D. Decreased physical activity and metabolic changes reduce caloric needs.
- E. Financial resources, emotional, and physical state affect nutritional status.

## ◆ Assessment

- A. Hydration status, body weight, edema.
- B. Anemia.
- C. Appetite.
- D. Ability to feed self—physical and mental.
  - 1. Dentition.
  - 2. Mastication.
  - 3. Swallowing.
  - 4. Desire to eat.
- E. Fatigue, energy reserve.
- F. Constipation.
- G. Compliance to special diets.
- H. Effects of drugs on nutrition.
  - 1. Gastrointestinal irritation.
  - 2. Food-drug interactions.
  - 3. Some drug side effects are nausea and vomiting.
- I. Skin and mucous membrane condition.

## Implementation

- A. Offer/give oral fluids in small amounts every hour.
- B. Plan diet to be high in nutrients.
  - 1. Give foods with high fiber content.
  - 2. Balance of vitamins and minerals.
  - 3. Use lemon, vinegar, herbs on foods (rather than salt) to stimulate appetite.
- C. Devise tools and plates that assist self-feeding.
- D. Serve meals with others present to reduce isolation.

## Medications

- A. Thirty percent of all prescriptive drugs are used by older adults, and this does not include over-the-counter drugs.
- B. Eighty percent of people age 65 and over have at least one chronic medical problem that requires medications (one-third have three or more chronic problems).
- C. The typical older adult in the United States takes four to seven prescription drugs each day in addition to over-the-counter drugs (*polypharmacy*).
- D. Often older adults have several medical problems for which they have different doctors, each prescribing different drugs.
- E. Polypharmacy is responsible for 28% of hospital admissions.
- ◆ F. Older adults (13% of the population) suffer 50% of all drug side effects (estimated 17 per 100,000 population).
  - ◆ 1. Increased risk for drug toxicity.
    - a. Renal excretion altered—kidneys cannot process drugs as well.
    - b. Liver enzymes altered.
    - c. Diminished blood circulation to liver.
    - d. May take multiple drugs that compete with each other.
    - e. Central nervous system (CNS) more sensitive to drugs.
      - (1) Drugs interfere with neurotransmitters (chemicals) that regulate brain function.
      - (2) Side effects result in confusion.
    - f. Lean body mass replaced by fat, so aging affects how much of the drug reaches bloodstream (e.g., Coumadin [warfarin sodium] and Lanoxin [digoxin] distributions in lean tissue may reach higher levels in older adults).
    - 2. Iatrogenic illness can be caused by drug therapy.
    - ◆ 3. Most commonly abused drugs by older adults.
      - a. Alcohol.
      - b. Tranquilizers (most frequently abused).
      - c. Sleeping pills.
      - d. Medications to control pain.
      - e. Laxatives.

- ◆ G. Major problems with prescriptive drugs in older adults.
  1. Drug interactions—people who use multiple physicians and pharmacies run the risk of taking drugs that interact to cause adverse reactions.
    - a. Some drugs use the same metabolic pathway and can result in hazardous blood levels.
    - b. The combined effects of some drugs can be more potent than the physician intended.
  2. Medication errors—the more medications a person takes, the greater the risk of medication error (people over age 75 take an average of 17 prescriptions annually).
  3. Opioids—produce greater analgesic effect in older adults.
    - a. Opioid therapy should be initiated with 25% to 50% lower dose than that given to adults.
    - b. Monitor for respiratory depression and reduced arterial O<sub>2</sub> saturation.
    - c. Monitor for other side effects: sedation, hypotension, urinary retention, constipation, etc.
  4. Noncompliance—not taking right dose at right time or discontinuing drug without consultation; common due to lack of understanding about reason to take drug and general knowledge base of drug action.
  5. Unpredictable drug action—physiological changes associated with age and disease may alter effects of the drugs.
    - a. Beta blockers—may increase respiratory or heart disease in clients with asthma, COPD, or heart failure.
    - b. Nonsteroidal anti-inflammatory drugs (NSAIDs)—may increase gastrointestinal (GI) bleeding or worsen disease states.
    - c. Psychotropic drugs—aggravate glaucoma or worsen heart block.
  6. Drug side effects not recognized—older adults not aware or do not understand potential dangerous side effects of drugs.
  7. Inadequate monitoring—older adult is often alone or not monitored consistently so drug problems are not identified.
  8. Cost of drugs—multiple medications are costly for many older adults, so they stop taking drugs.
- H. Preventing problems with drugs in older adults.
  1. Keep an up-to-date list of all drugs taken, including herbs, with dose and dosing schedule.
  2. Take the list to every doctor seen, and to the pharmacy.
  3. Order all prescriptions from same pharmacy.

#### **GUIDELINES FOR ANALGESIC MEDICATION ADMINISTRATION**

- Older adult clients often receive less analgesic medications than younger adults, thus leading to inadequate pain relief.
- Safe analgesic administration is complicated by interactions with multiple chronic disorders and multiple drugs to treat these disorders.
- Older adults experience greater peak and longer duration of action from analgesics than younger individuals.
- Drug interactions occur more frequently in older adults.
- NSAID complications are common and must be carefully monitored.

4. Know the expected side effects of all drugs.
5. Monitor for medications on the Beers Criteria—potentially inappropriate medication for use in older adults (American Geriatrics Society, 2012).

#### **Administration of Medications**

- A. Oral route.
  1. Check for mouth dryness.
    - a. Drug may stick and dissolve in mouth.
    - b. Drug may irritate mucous membranes.
  2. Place client in sitting position.
  3. Crush tablets if they are very large.
  4. Do not open capsules.
  5. Do not crush enteric-coated tablets.
  6. Check with pharmacy for liquid preparations if client has difficulty swallowing tablets.
- B. Topical medications will be absorbed more slowly.
- C. Suppository.
  1. Position for comfort.
  2. May take longer to dissolve due to decreased body core temperature.
  3. Do not insert suppository immediately after removing from refrigerator.
- D. Parenteral.
  1. Site may ooze medication or bleed due to decreased tissue elasticity.
  2. Do not use immobile limb.
  3. Danger of overhydration with intravenous (IV) administration.
  4. Decreased muscle mass may determine length of needle for injections.
- E. Self-administration.
  1. Check compliance with amounts and times.
  2. Color code to facilitate proper administration.

#### **Assessment**

- A. Changes in mental status.
- B. Vital signs.
  1. Orthostatic blood pressure.
  2. Apical pulse.
- C. Urine production, retention.

- D. Hydration and appetite.
- E. Visual disturbances.
- F. Swallowing ability.
- G. Evaluate effects of drug.
  - 1. Laboratory studies.
  - 2. Signs and symptoms for toxic/interaction effects of drugs.
- H. Bowel function.
- I. Effects of nutrition and foods on drug response.

#### **Implementation**

- A. No alcohol or alcohol-based elixirs when receiving benzodiazepines or antihistamines.
- B. Method of administering drugs.
  - 1. Deep-breathing and relaxation to reduce use of analgesic drugs.
  - 2. Position client sitting with head slightly flexed to reduce chance of aspiration.
- C. Administering tablets.
  - 1. Do not crush time-released or enteric-coated tablets.
  - 2. Crush large tablets if not contraindicated.
  - 3. Give with textured foods (nectar, applesauce) if not contraindicated.
- D. Stroke victim—give drug on functional side of mouth.

### **Pain in Older Adults**

#### **Characteristics**

- A. More than 80% of all older adults suffer pain from chronic diseases.
- ◆ B. Pain management is different with older adults.
  - 1. Underreported by older clients—may feel pain is a normal part of growing older.
  - 2. Physiology of the body affects absorption and metabolism of medication—pain drugs may have altered pharmacodynamics.
- C. Important to recognize and assess pain in older adults or the results may affect the ability to function.

#### **Assessment**

- ◆ A. Nonverbal cues to pain.
  - 1. Moaning or groaning.
  - 2. Restlessness or agitation.
  - 3. Crying.
- B. Verbal cues to pain.
  - 1. Reporting pain—try to establish a method of calibrating degree of pain (use pain scale that client understands).
  - 2. Assessing if pain medication is working.

#### **Implementation**

- A. Monitor pain cues closely, especially nonverbal ones.
- B. Judge impact of pain on client—how much the pain contributes to poor functioning in activities of daily living.

- C. Monitor pain relief methods.
  - 1. Medications: see Medications section on preceding pages.
  - 2. Provide pain relief through alternative methods (massage, acupuncture, relaxation, visualization, etc.).
  - 3. Listen to client's reports of pain relief and adjust care plan accordingly (if pain medication is not working, ask physician to change drug).
- D. See Joint Commission Pain Standards on page 47.

### **Drug–Food–Herb Interactions in Older Adults**

- A. Certain foods, vitamins/minerals, and “natural” remedies can interfere with therapeutic effects of drugs.
  - 1. Reduce absorption of drug.
  - 2. Interfere with cellular action.
- B. Medication regimen affected by nutrition may put client at risk.
  - 1. Important to assess client's diet.
  - 2. Monitor potential vitamin–drug interactions.
  - 3. Certain drugs deplete essential nutrients; monitor client for low vitamin B complex, B<sub>12</sub>, etc.
- C. Review client's prescriptive and over-the-counter drugs.
  - 1. Review in relation to normal dietary intake.
  - 2. Consider vitamin/mineral intake and supplements in terms of decreasing effect of medications.
  - 3. Check lab values for problems.
- D. Review herbs client is taking because interaction with medications may be dangerous. (See Herb–Drug Interactions on page 109.)
- E. Document findings so healthcare team is informed of diet/drug plan.
- ◆ F. Food sources of vitamins and minerals.
  - 1. Folic acid sources: liver, kidney, fresh vegetables.
  - 2. Niacin sources: yeast, meat, fish, milk, eggs, green vegetables, and cereal grains.
  - 3. Pantothenic acid sources: meat, vegetables, cereal grains, legumes, eggs, milk, fish, and fruit.
  - 4. Pyridoxine hydrochloride (vitamin B<sub>6</sub>) sources: cereal grains, legumes, vegetables, liver, meat, and eggs.
  - 5. Cyanocobalamin (vitamin B<sub>12</sub>) sources: animal foods, liver, kidney, fish, shellfish, meat, and dairy foods.
  - 6. Ascorbic acid (vitamin C) sources: fresh fruits and vegetables.

7. Vitamin A sources: eggs, milk, cream, butter, organ meats, fish.
8. Vitamin D source: activated in body by sunlight.
9. Vitamin E sources: vegetable oils, whole grains, animal fats, eggs, and green vegetables.
10. Vitamin K sources: green leafy vegetables, spinach, broccoli, cabbage, and liver.

## Lab Values in Older Adults

### ♦ Urinalysis

- A. Protein.
  1. Normal 0–5 mg/100 mL—rises slightly.
  2. May reflect changes in kidney or subclinical urinary tract infection.
- B. Glucose.
  1. Normal 0–15 mg/100 mL—declines slightly.
  2. May reflect changes in kidney.
- C. Specific gravity.
  1. 1.010; changes to 1.024 by age 80 (older adults have a decreased thirst mechanism—drinking less water causes the specific gravity to increase).
  2. Thirty to fifty percent decline in number of nephrons affects ability to concentrate urine.

### ♦ Hematology

- A. Hemoglobin.
  1. Men, 13–18 g/100 mL—drops 10–17 g/100 mL.
  2. Women, 12–16 g/100 mL—no change.
- B. Hematocrit.
  1. Men, 40–54%—no change.
  2. Women, 37–48%—no change.
- C. Leukocytes.
  1. 4300–10,800/mm<sup>3</sup>—drops to 3100–9000/mm<sup>3</sup>.
  2. As bone marrow diminishes, hematopoiesis declines.
- D. Lymphocytes—1500–4500/mm<sup>3</sup>.
  1. T lymphocytes fall.
  2. B lymphocytes fall.
- E. Platelets, prothrombin time (PT), and partial thromboplastin time (PTT)—no change.

### ♦ Blood Chemistry Tests That Change with Age

- A. BUN.
  1. Men, 10–20 mg/100 mL—increases, may be as high as 69 mg/100 mL.
  2. Women, 8–20 mg/100 mL—increases.
  3. Renal function decreased due to decline in cardiac output, renal blood flow, and glomerular filtration rate.

- B. Creatinine.
  1. 0.6–1.2 mg/100 mL—increases as high as 1.9 mg/100 mL in men and women.
  2. Endogenous creatinine is produced as lean body mass shrinks.
  3. Drugs excreted by urinary system may cause toxicity if creatinine level is too high.
- C. Creatinine clearance.
  1. 104–132 mL/min (females); 110–150 mL/min (males).
  2. Referenced interval: men's formula for age:  $140 - \text{age} \times \text{kg body weight divided by } 72 \times \text{serum creatinine}$ .
  - ♦ 3. Reduced levels result in older adults more likely to develop toxicity to drugs excreted by kidneys.
- D. Albumin.
  1. Decreases within the normal range—3.5 to 5.0 g/dL.
  2. Increases with dehydration.
- E. Glucose tolerance.
  1. One hour: 160–170 mg/100 mL.  
Two hours: 115–125 mg/100 mL.  
Three hours: 70–110 mg/100 mL.
  2. With age, results rise more quickly in first 2 hours, then drop to baseline more slowly.
  3. Alcohol, monoamine oxidase (MAO) inhibitors, and beta blockers can all cause a rapid fall in glucose.
- F. Fasting serum glucose.
  1. 70–115 mg/dL increases with age.
  2. Older adults are more prone to glucose intolerance and diabetes.
- G. Thyroxine (T<sub>4</sub>) 4.5–13.5 µg/dL and triiodothyronine (T<sub>3</sub>) 90–220 µm/dL—both decrease by 25%.

## Prescription for Long Life and Good Health

- A. Regular exercise—older adults must continue to exercise regularly to maintain health (can increase function by 50% through exercise).
- ♦ B. Nutritious diet—intake of adequate nutrients and calories to maintain body.
  1. Malnutrition contributes to high incidence of chronic disease.
  2. Obesity contributes to increased health risks (heart disease, hypertension).
  3. Diet adequate to maintain normal body weight, low fat, and include all four food groups for minimal nutrients, vitamins, and minerals.
- C. No smoking—smokers die earlier than nonsmokers and have a higher incidence of heart disease, heart attack, cancer, and chronic lung disease.

- D. Moderate alcohol intake; high alcohol intake is a health risk that leads to liver disease, nervous system damage, gastrointestinal problems.
- ◆ E. Prevention of health problems—yearly physical examinations are important for older adults to diagnose an early disease process.
  - 1. Check warning signs of cancer, heart disease (hypertension).
  - 2. Pap smear and mammogram for women as precaution against cancer.
  - 3. Men should have prostate-specific antigen (PSA) test, along with exams for colon, prostate cancer.
- F. Managing stress—stress is associated with increased incidence of heart disease, hypertension, cancer, and other diseases.
- G. Maintain contact with friends for support; studies show that isolated older adults have more health problems and die earlier than people who have close attachments.
- H. Smile more and give thanks daily.
- I. Involvement in a community of faith indicates better health and outcomes in older adults.

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## **GERONTOLOGICAL NURSING REVIEW QUESTIONS**

1. List by numbers all of the client characteristics that would influence the client's adaptation to the hospital \_\_\_\_\_.
  1. Age.
  2. Sense of humor.
  3. Level of consciousness.
  4. English language ability.
  5. Nationality.
  6. Disease state.
2. An older adult client is in a long-term care facility. She had a left-sided cerebrovascular accident (CVA) 4 weeks ago and has been bedridden since that time. A sign or symptom indicating a possible complication of immobility is
  1. A reddened area over the sacrum.
  2. Stiffness in the left leg.
  3. Difficulty moving her left arm.
  4. Difficulty hearing low voices.
3. The visiting home health nurse is assigned to a client who just had cataract surgery. A care plan would include instructions to
  1. Maintain bed rest for at least 2 days with bathroom privileges only.
  2. Keep the head up and straight and not to look down.
  3. Deep-breathe and cough four times a day.
  4. Lie only on the affected side when in bed.
4. A client has been admitted to the orthopedic unit with an intracapsular fracture of the right hip sustained after a fall on the ice. Buck's extension is applied and arrangements are being made for hip prosthesis surgery in the morning. The purpose for the application of Buck's extension at this time is to
  1. Reduce the fracture.
  2. Relieve muscle spasm.
  3. Keep the knee extended.
  4. Stabilize the fractured hip.
5. After a Foley catheter had been inserted for 2 days, it was removed by the nurse. The nurse should assess for an expected outcome of
  1. Dribbling after the first several voidings.
  2. Urgency and frequency for several days.
  3. Frequent voiding in small amounts.
  4. Retention of urine for 10- to 12-hour periods.
6. A client is being discharged in the morning to an extended care nursing facility. He asks the nurse why he has to go to "that place." The best response is
  1. "The physician has determined that this is the best place for you right now."
  2. "You will need to ask the physician that question when he comes in to see you."
  3. "Did the physician or anyone else talk to you about going to the nursing home?"
  4. "Your family can't take care of you at home so you will need to go there."
7. Among older adults, the leading cause of death is
  1. Heart disease.
  2. Cancer.
  3. Stroke.
  4. Pneumonia.
8. When an older adult client is in the hospital, an important safety consideration is to
  1. Restrain the client when in bed.
  2. Assign the client to a double room with another client.
  3. Keep the bed in high position.
  4. Place upper side rails in up position when the client is alone.
9. Which of the following changes is not considered a normal process of aging?
  1. Renal function diminishes.
  2. Short-term memory diminishes.
  3. Intelligence diminishes.
  4. Secretions decrease or change in composition.
10. A 68-year-old client comes to the clinic with complaints of pain in her joints. She is given the diagnosis of rheumatoid arthritis, and the physician orders aspirin (acetylsalicylic acid; ASA) therapy, 20 tabs/day. Before discharge, the nurse teaches the client that possible side effects of ASA therapy are
  1. Bleeding, nausea, and constipation.
  2. Gastritis, nausea and vomiting, and bleeding.
  3. Blurred vision and nausea and vomiting.
  4. Blurred vision and tinnitus.

- 11.** When instructing a 60-year-old client with long-term diabetes on preventing chronic complications of retinopathy or nephropathy, an important principle to teach would be to
1. Visit the physician frequently for check-ups.
  2. Obtain frequent lab values of BUN and creatinine.
  3. Complete frequent fasting plasma glucose testing.
  4. Maintain stable blood glucose levels.
- 12.** The signs of pacemaker malfunction that the nurse would include in discharge teaching for a client with a new pacemaker are
1. Increased urine output and headache.
  2. Irregular, rapid pulse.
  3. Weakness and fatigue.
  4. Disorientation and confusion.
- 13.** A client with increased right atrial pressure has a central venous line in place. The nurse expects that his central venous pressure (CVP) reading will be
1. 0–2 mm Hg.
  2. 5–10 cm H<sub>2</sub>O.
  3. 8–10 mm Hg.
  4. 15–20 cm H<sub>2</sub>O.
- 14.** As the nurse develops a care plan for a client who sustained an intertrochanteric fracture of the left hip, she knows that initial care includes
1. Abductor splints in place until edema is reduced.
  2. Pelvic traction until edema is reduced.
  3. Buck's extension until edema is reduced.
  4. Balanced suspension traction until surgery is completed.
- 15.** An elderly client has received radiation for cancer. Based on an understanding of blood changes associated with radiotherapy, the nurse will focus the assessment on
1. Checking lab tests for low hemoglobin.
  2. Observing for signs of infection.
  3. Checking the need for subcutaneous vitamin K.
  4. Monitoring for prophylactic antibiotics.
- 16.** A 63-year-old male client with a history of alcohol abuse has been admitted with a diagnosis of acute pancreatitis. After completing an assessment on the client, the priority nursing diagnosis is
1. Fluid volume deficit due to fluid losses into body spaces.
  2. Impaired oxygenation due to rapid respirations.
- 17.** Potential for infection due to decreased immune response.
- 18.** Alteration in nutrition, less than requirements, due to decreased intake.
- 19.** When assessing a client for possible dehydration, which of the following clinical manifestations would indicate this state?
1. Taut, shiny skin.
  2. Firm eyeballs.
  3. Bounding pulse.
  4. Dry, flaking skin.
- 20.** The nurse is assessing a 75-year-old client who is taking digitalis. The initial clinical symptoms indicating digitalis toxicity would include
1. Anorexia, nausea, and vomiting.
  2. Diarrhea, headache, and vertigo.
  3. Nausea, vomiting, and diarrhea.
  4. Vomiting, diarrhea, and vertigo.
- 21.** An 81-year-old male client has begun Cheyne–Stokes respirations. The nurse understands that this respiratory pattern involves
1. Periods of hyperpnea alternating with periods of apnea.
  2. Periods of tachypnea alternating with periods of apnea.
  3. Respirations characteristically increased in both rate and depth.
  4. Deep, regular, sighing respirations.
- 22.** A client has been given the diagnosis of Alzheimer's disease. The nurse observes that he has been incontinent and soiled his clothes for the second time on this shift. The most appropriate nursing intervention is to
1. Put the client in adult diapers to protect him from embarrassment.
  2. Scold the client and tell him not to wet his pants again.
  3. Tell the client you will change his pants and establish a 2-hour schedule of taking him to the bathroom.
  4. Tell the client to ask you for assistance the next time he has to go to the bathroom.
- 23.** The client's physician orders 20 mEq of potassium chloride (KCl). The label on the KCl is 10 mEq/5 mL. The nurse will give the client
1. 10 mL.
  2. 2 mL.
  3. 5 mL.
  4. 20 mL.

22. A 78-year-old client who suffered a CVA is in a long-term facility. She has developed a pressure ulcer. The nurse is applying a wet-to-moist dressing. The rationale for using this type of dressing is to
1. Prevent the dressing from leaking on the bed clothes.
  2. Prevent damage to granulating tissue when removing the dressing.
  3. Enable the dressing to almost dry on the ulcer to promote healing.
  4. Assist in debriding the wound.
23. After the client has recovered from coronary bypass surgery, her physician has advised a low-cholesterol diet. The nurse will know that the client understands this diet when she includes foods such as
1. Meats, especially organ meats, and dairy products.
  2. Eggs, cheese, fruits, and vegetables.
  3. Vegetables, fruits, lean meats, and vegetable oils.
  4. Raw or cooked vegetables, fruits, and red meat.
24. An 87-year-old client is admitted to the hospital complaining of weakness and shortness of breath. Her diagnosis is congestive heart failure. As the nurse is assessing the client's condition, which of the following signs will indicate that she is in left-sided heart failure?
1. Fatigue, dyspnea, and wheezing.
  2. Hepatomegaly and oliguria.
  3. Decreased pulmonary artery pressure.
  4. Peripheral edema such as sacral edema.
25. A 70-year-old client with organic brain syndrome, dementia type, is frequently incontinent, even when he is fully dressed. An initial plan to deal with this behavior is to
1. Remind the client to tell the nurse when he has to urinate.
  2. Put the client in diapers.
  3. Take the client to the bathroom on a 2-hour schedule.
  4. Tell the client that he must remember to go to the bathroom before he wets his pants.

## GERONTOLOGICAL NURSING ANSWERS WITH RATIONALE

1. There are several answers to this question—1 3 4 6. While sense of humor may help adaptation, it is not a major influence. Nationality is also not important; rather, it is the ability to communicate with personnel that influences how a client adapts.

**NP:A; CN:H; CA:M; CL:C**

2. (1) A reddened area over the sacrum may be the first sign of a pressure ulcer. If it is recognized at this stage and nursing actions are taken to avoid additional pressure (frequent turning, massaging the skin, etc.), the ulcer may be avoided. Answers (2) and (3) can be expected with left-sided CVA, and (4) is usually an expected development with an elderly person.

**NP:A; CN:PH; CA:M; CL:C**

3. (2) Keeping the head straight and avoiding looking down will prevent intraocular pressure. The nurse would practice breathing exercises with the client but will not encourage coughing, as this could cause an increase in intraocular pressure in the operative eye.

**NP:P; CN:PH; CA:S; CL:A**

4. (2) The purpose of Buck's extension application following hip fracture is immobilization to relieve muscle spasm at the fracture site and thereby relieve pain. Any movement of fracture fragments will aggravate severe muscle spasm and pain. Skin traction such as this is not used to reduce a fracture (1), and it is not important to keep the knee extended (3). Bryant's or Russell's traction will stabilize a fractured femur, not the hip.

**NP:AN; CN:PH; CA:S; CL:K**

5. (1) Dribbling may be normal until the sphincter muscles regain their tone. If the catheter had been in place for several weeks, frequent voiding in small amounts (3) might have been the most appropriate response. Urgency and frequency (2) are symptoms of a bladder infection.

**NP:E; CN:PH; CA:S; CL:A**

6. (3) is the most appropriate response. It is important to identify what the client thinks he has heard about his discharge. Clarification of information can proceed after this. The other answers do not allow the client to verbalize his fears or concerns.

**NP:I; CN:PS; CA:M; CL:A**

7. (1) The leading cause of death is heart disease, even though the incidence has declined since 1968. Cancer (2) is second, stroke (3) third, and respiratory diseases (4) last as the cause of death.

**NP:AN; CN:H; CA:M; CL:K**

8. (4) Upper side rails in the up position is the most important safety intervention to prevent the client from falling out of bed. Clients should be restrained (1) only as a last resort; restraints require a physician's order. The bed should be in low position to prevent the client from falling from a greater height. Placing the client in a double room (2) would not be considered a safety intervention.

**NP:I; CN:S; CA:M; CL:A**

9. (3) Intelligence is not affected. Long-term memory usually is not affected. Short-term or intermediate memory changes are affected by the aging process.

**NP:AN; CN:H; CA:M; CL:K**

10. (2) Gastritis, nausea, vomiting, and bleeding are the most common side effects of ASA therapy. Blurred vision is not a side effect of ASA therapy, and tinnitus would indicate that the toxic level of the drug had been reached.

**NP:I; CN:PH; CA:M; CL:C**

11. (4) The most important principle to teach the client is the necessity of maintaining stable blood glucose levels. Frequent testing (1, 2, 3) is part of the picture, but unless the levels are stabilized, testing itself is not enough.

**NP:I; CN:H; CA:M; CL:C**

Coding for Questions/Answers Abbreviations: Nursing Process: NP, Assessment: A, Analysis: AN, Planning: P, Implementation: I, Evaluation: E; Client Needs: CN, Safe, Effective Care Environment: S, Health Promotion and Maintenance: H, Psychosocial Integrity: PS, Physiological Integrity: PH; Clinical Area: CA, Medical Nursing: M, Surgical Nursing: S, Maternal/Newborn Nursing: MA, Pediatric Nursing: P, Psychiatric Nursing: PS; Cognitive Level: CL, Knowledge: K, Comprehension: C, Application: A, Analysis: AN.

12. (3) Weakness and fatigue are symptoms that indicate hypoxia to the tissues. The client should be taught to recognize these as symptoms of pacemaker malfunction.

**NP:I; CN:H; CA:M; CL:A**

13. (4) An elevated CVP is expected in this client due to the increased right atrial pressure. The normal reading is 5 to 10 cm of water pressure.

**NP:AN; CN:PH; CA:M; CL:A**

14. (4) The client is usually placed in balanced suspension traction until surgery can be completed. This type of traction allows the client to move up and down in bed without interfering with the alignment of the bones. It also prevents muscle spasms. The surgical intervention is done early in elderly clients to prevent complications of immobilization.

**NP:P; CN:PH; CA:S; CL:A**

15. (2) Clients undergoing radiotherapy may have a decreased white blood cell count and should be observed closely for infections. They will probably not have a low hemoglobin (1) and will not need vitamin K (3). These clients do not usually receive prophylactic antibiotics (4).

**NP:A; CN:PH; CA:M; CL:AN**

16. (1) Because of the autodigestion of pancreatic and surrounding tissue, there is interstitial hemorrhage, local vascular drainage, increased vascular permeability, and vasodilation. Fluid loss will lead to fluid volume deficit. The client will be placed on bed rest, a nasogastric tube will be inserted, and analgesics will be used liberally for extreme pain.

**NP:P; CN:PH; CA:M; CL:C**

17. (4) Dry, flaking skin is present when a client is dehydrated. All of the other responses are indicative of an overhydrated state.

**NP:A; CN:PH; CA:M; CL:C**

18. (1) Anorexia is the initial symptom associated with digitalis toxicity. Nausea and vomiting are also very common symptoms.

**NP:A; CN:PH; CA:M; CL:C**

19. (1) Cheyne–Stokes respirations are found in clients with increased intracranial pressure and heart conditions. There is a pattern of deep respirations followed by progressively shallow respirations and then apnea.

**NP:AN; CN:PH; CA:M; CL:C**

20. (3) Even though the nurse may eventually have to place diapers on the client, this is not the first intervention. An every-2-hour bathroom schedule may solve the problem because he will not remember to say when he needs to urinate.

**NP:I; CN:PS; CA:PS; CL:A**

21. (1) 10 mL. To calculate the KCl, you would use the equation:  $20 \text{ mEq} = x \text{ mL}$ ; thus,  $10 \text{ mEq} = 5 \text{ mL}$ ;  $10x = 100$ ;  $x = 10 \text{ mL}$ .

**NP:I; CN:PH; CA:M; CL:A**

22. (2) Wet-to-moist dressings prevent damage to new tissue when the dressing is removed. Wet-to-dry dressings debride the wound (4). This dressing is not to prevent leaking (1), and allowing the dressing to almost dry (3) will not support new tissue.

**NP:AN; CN:PH; CA:M; CL:A**

23. (3) These food choices will provide the lowest cholesterol content. Whole milk, dairy products, and fatty meats (1) are all high in cholesterol.

**NP:E; CN:PH; CA:S; CL:A**

24. (1) In left-sided heart failure, congestion occurs mainly in the lungs. It is caused by inadequate ejection of the blood into the systemic circulation. Dyspnea, sneezing, coughing, rales, and fatigue are common symptoms. The other answers refer to right-sided failure.

**NP:A; CN:PH; CA:M; CL:AN**

25. (3) Because the client cannot remember to tell the nurse or remember to get himself to the bathroom, the best plan is to take him on a schedule. This is preferable to dressing him in diapers (2), even though this may eventually have to be done.

**NP:P; CN:S; CA:PS; CL:A**