Chapter 14 Vital Signs and Pain Management

Vital Signs
° Reflect body changes that might not be noticed otherwise
° Compare readings to client’s normal and to averages for group
° Normal vital signs and variations [corresponds to Table 14-1]
  o Infants and children
  o Teens
  o Adults
  o Elderly adults

Body Temperature
° Factors affecting temperature
  o Basal metabolic rate
  o Muscle activity
  o Thyroxin output
  o Sympathetic stimulation
  o Fever
° Processes that increase temperature
  o Shivering
  o Sweating
  o Vasoconstriction
° Regulation of body temperature
  o Body temperature
    • Age
    • Circadian rhythms
    • Exercise
    • Hormones
    • Stress
    • Environmental temperatures
    • Site of assessment
° Alterations in body temperature
  o Terms: pyrexia, hyperthermia, hyperpyrexia, afebrile, crisis, hypothermia
  o Manifestations of fever [corresponds to Box 14-1]
  o Manifestations of hypothermia [corresponds to Box 14-2]
° Temperature assessment methods [corresponds to Table 14-2 and Procedure 14-1, Assessing Body Temperature]
  o Tympanic – becoming preferred site
  o Oral
  o Rectal
  o Axillary
° Scales
  o Celsius
  o Fahrenheit
  o Converting from scale to scale

Pulse
° Terms: stroke volume, apical pulse, peripheral pulse
° Factors affecting pulse
- Age
- Sex
- Exercise
- Fever
- Stress
- Medications
- Loss of blood
- Position changes

Pulse sites
- Nine sites for measuring pulse
  - Radial –easily found and readily accessible
  - Temporal
  - Carotid
  - Apical [corresponds with Procedure 14-2B]
  - Location by age
  - Brachial
  - Femoral
  - Popliteal
  - Posterior tibial
  - Pedal

Procedure for measuring pulse [corresponds with Procedure 14-2 Assessing Pulse]
- Part A: peripheral pulse
- Part B: apical pulse
- Part C: apical- radial pulse
  - Two nurse technique
  - One nurse technique

Reasons for using specific pulse sites [corresponds with Table 14-3]

Respirations
- Terms: respirations, external respiration, internal respiration, ventilation
- Factors that affect respirations
  - Exercise
  - Anxiety
  - Medications
  - Altitude
  - Cardiovascular function

Mechanics of respiration
- Movement of ribs, diaphragm, sternum
- Costal breathing
- Diaphragmatic breathing

Control of respirations
- Central nervous system
  - Medulla oblongata and pons
- Chemoreceptors
  - Medulla
  - Carotid and aortic bodies
Assessment of respirations [corresponds to Procedure 14-3 Assessing Respirations]
  - Rate
  - Depth
  - Rhythm
  - Effort
  - Sound

Blood Pressure
  - Systolic pressure
  - Diastolic pressure
  - Determinants of blood pressure
    - Pumping action of heart – cardiac output
    - Peripheral vascular resistance
    - Blood volume
    - Blood viscosity
  - Factors that affect blood pressure
    - Age
    - Exercise
    - Stress
    - Race
    - Obesity
    - Sex
    - Medications
    - Diurnal variations
    - Disease processes
    - Assessment errors
  - Blood pressure disorders
    - Hypertension
      - Follow-up for BP readings [corresponds to Table 14-4]
    - Hypotension
      - Orthostatic hypotension
  - Blood pressure equipment
    - Sphygmomanometer – bladder, cuff
    - Doppler ultrasound
  - Blood pressure assessment sites [corresponds to Procedure 14-4 assessing blood pressure]
  - Methods
    - Direct or invasive
    - Noninvasive – auscultatory (most common) and palpatory
      - Korotkoff’s sounds [corresponds to Box 14-6 and Figure 14-18]

Pain
  - Categories of pain
    - Classified by duration
      - Acute or chronic [corresponds to Table 14-5]
      - Intractable
    - Classified by etiology
• Cutaneous
• Somatic
• Visceral
  o Classified by location
    • Radiating
    • Referred [corresponds to Figure 14-19]
    • Neuropathic
    • Phantom
• Concepts associated with pain
  o Pain threshold
  o Pain reaction
  o Pain tolerance
• Physiology of pain
  o Nociceptors
  o Gate Control Theory
  o Factors affecting pain experience [corresponds to Box 14-7]
Management of Pain
  o Pharmacologic management
  o Nonpharmacologic interventions [corresponds to Box 14-8]
    o Cutaneous stimulation - massage, heat or cold, acupressure, contralateral stimulation
    o TENS
    o Distraction
    o Invasive therapies
    o Surgery
Nursing Care
  o Assessing
    o Individual variations
      • Be aware of client’s baseline data [corresponds to Box 14-9]
      • Use of alternate assessment method
    o Times to assess vital signs [corresponds to Box 14-10]
    o Factors that affect VS measurements --medications, activity, baseline data, position of client
    o Basic heart sounds [corresponds to Table 14-6]
    o Scale for measuring pulse volume [corresponds to Table 14-7]
    o Factors influencing respiratory rate [corresponds to Table 14-8]
    o Altered breathing patterns and sounds [corresponds to Box 14-11]
    o Factors that lead to BP errors [corresponds to Table 14-9]
    o Pain assessment
    o Initiated by the nurse
    o Reasons for reluctance to report pain [corresponds to Box 14-12]
    o Subjective information from client –PQRST rubric’
      • Precipitation/palliation (what starts & relieves pain)
      • Quality (sharp, dull, shooting, and so on)
      • Region/radiation (what is location of pain and does it move?)
      • Severity (how intense is pain?)
• **Timing (when does it start and how long does it last?)**
• Further information: coping strategies, effects on daily living; affective, behavioral, and physiologic responses
  o Pain scales – 1 to 10 and child’s [corresponds to Figure 14-23]
  ° **Objective information**
  o Observation of behavior
  o **Interventions for pain**
    • Nurse-client relationship – individualize care
    • Use of measures client believes effective
    • Preventing pain – preemptive analgesia
    • Supporting client and family
  ° Select interventions by age and developmental level [corresponds to Table 14-10]
  ° **Nursing Process Care Plan: Client with Left-Sided Heart Failure**
Critical Thinking Care Map: Caring for a Client with Postoperative Pain