N441 Concept Review Exam

Fractures (indications, nursing management, complications)

Closed (simple) fracture: does not break through skin

Open (compound) fracture: open wound & tissue injury (risk of infection)

Displaced fracture: bone fragments not in alignment

Non-displaced fracture: bone fragments in alignment

Pathological (spontaneous) fracture: bone is weak from disease (bone cancer; osteoporosis)

Compression fracture: force pressing on callus bone (older adult clients with osteoporosis)

Nursing management –

- Stabilize injured area (avoid unnecessary movement)
- Neuro checks Q1 hr. – Immediately report any change in status

Risks:

- Osteoporosis – long-term steroid use
- Falls
- MVA
- Substance abuse disorder
- Disease (bone cancer; Paget's)
- Contact sports
- Physical abuse
- Lactose intolerance
- Age (less dense w/ older age)

Findings: hx trauma, metabolic bone disorders, chronic conditions, corticosteroid therapy. Pain/reduced movement @ fracture area OR distal to fracture

Immobilization Devices (Indications, Nursing Management)

Cast-

- Neuro Status Q1 hr for 1st 24 hrs.
- Ice for 24-48 hrs.
- Use palms avoid fingertips
- Tubular cotton roll web placed over affected area – maintains skin integrity
- Elevate over level of heart for 1st 24-48 hrs. (cloth covered pillow)
- 1 finger btwn cast & skin
- Document drainage – circle on cast (may increase client anxiety)
- Report SOB, skin breakdown, Constipation

Splint/Immobilizers-

- ❖ Splints are removeable

Traction-

{Prescription} – type, amount of weight, removal for nursing care

Goals: Prevent soft tissue injury, realign bone, decrease muscle spasms/pain, correct/prevent deformities

Nursing actions:

- o Neuro assess Q1 hr for 24 hrs then Q4 after
- o Avoid lifting/removing weights
- o Weight hang freely NOT resting on floor
- o Move client in halo traction as a unit
- o Heat/massage to prevent muscle spasms

Pin care-

- – Monitor – drainage & redness (color/amount/odor)
- – Loosening of pins
- – Tenting of skin (skin rising up pin)
- • Chlorhexidine
- • One cotton swab/each pin
- • Pin care once/shift; 1-2X/day

Internal Fixation-

External Fixation-

Nursing actions:

- o Elevate extremity
- o Monitor neuro status & skin
- o Assess body image
- o Pin care Q8-12 hours – monitor for drainage, color, odor, redness
- o Observe manifestation of fat & PE
- o TED hose/SCDs

Client education:

- ▪ Teach pin care
- ▪ Clothing to cover devise
- ▪ If restricted activity – perform deep breathe/repo/incentive spirometry—prevent pneumonia & thrombus

Open reduction- incision made to align bone (plates & screws) –ORIF

Nursing Actions:

- Prevent hip dislocation
- Heel off-loaded
- Neuro assess
- Elastic wrap used to keep window block cover in place—decreases localized edema
- Monitor manifestations of fat & PE
- TED hose/SCDs/Anticoagulants
- Pain level
- Monitor for infection S/S
- Consult PT/OT
- Get out of bed from unaffected side

Nutrition:

→ Increase calories

→ Calcium supplements

→ Small/frequent meals w/ snacks

→ Monitor for constipation

Circular external fixation: promote new bone growth for malunion & nonunion (device turned 4X/day to pull apart cortex of bone to stimulate growth

Closed Reduction- traction is applied to realign the bone.

Complications (manifestation, nursing management)

Compartment syndrome (5 P's)-

1. Pain
2. Paralysis
3. Paresthesia
4. Pallor
5. Pulselessness → late manifestation

❖ Negative pressure wound therapy – reduce edema

Nursing action:

- Neuro status
- Notify provider when suspected
- Provider will cut cast on one side (univalve) OR both (bivalve)
- Loose constrictive bandage

Client education:

- Report px not relieved by analgesics
- Report numbness/tingling/change in color

Fat Embolism-

Risks:

- >70
- Hip/pelvis fracture
- Within 12-48 hr following long bone fracture OR total joint arthroplasty

EARLY Manifestations

- Dyspnea
- Increased RR
- Decreased O2
- HA
- Decreased mental acuity
- Respiratory distress
- Tachycardia
- Confusion
- Chest px

LATE Manifestations

- Cutaneous petechia **Discriminating finding**

Nursing actions:

- BR
- Immobilization of fractures of long bones
- Minimal manipulation during turning if immobilization procedure hasn't been done
- TX: oxygen (respiratory compromise), corticosteroids (cerebral edema), vasopressors, fluid replacement (shock), pain & anti-anxiety meds

Venous thromboembolism (DVT, PE)-

Osteomyelitis

Manifestations:

- Bone pain (Constant/pulsating/localized/worse w/ movement)
- Erythema & edema
- Fever – older adults might not have
- Leukocytosis & elevated ESR
- Manifestations may disappear if infection is chronic

Nursing actions:

- Antibiotics
- Analgesics
- Neuro assess if debridement

- If open wound –clean technique

Avascular necrosis-

- ❖ Long-term corticosteroids are at greater risk
- ❖ Hip fractures OR fractures w/ displacement of bone
- ❖ Replacement of bone w/ graft or prosthetic can be necessary

Failure of fracture to heal- fracture not healed w/in 6 months of injury

Malunion: heals incorrectly

Nonunion: never heals

- ❖ TX: electrical bone stimulation & bone grafting
- ❖ Low intensity pulse US
- ❖ More common in older adults

Amputation (Risk factors/indications, nursing management, complications)-

Risks:

- ➢ Trauma
- ➢ PVD
- ➢ Thermal injury
- ➢ Malignancy
- ➢ DM
- ➢ Infection

Nursing actions:

- Prevent post-complications – hypovolemia, px, infection
- Assess for bleeding
- Monitor tissue perfusion @ end of limb

Phantom px:

- Administer calcitonin, beta-blockers, antiepileptics (Gabapentin), antispasmodics (baclofen)
- Push residual limb down toward bed supported on soft pillow

Shrinkage intervention:

- Figure 8 – prevent blood flow restriction & edema
- Stump shrinker sock
- Air splint

Post Op Complications:

- Cardiopulmonary
- DVT
- Stump hematoma
- Infection
- Re-amputation – revision
- Phantom pain
- Flexion contracture

Flexion contracture:

- ❖ Hip OR knee joint following amputation D/T improper positioning

Nursing actions:

- o ROM & position <u>immediately</u> following surgery
- o Prevent knee OR hip flexion contracture – elevate extremity ONLY for first 24-48 hrs – reduce swelling/edema
- o Prone position 20-30 min several times/day – prevents hip flexion contracture

Post op ambulation

- ❖ Amputation R/T ischemia NO weight bearing until thoroughly healed (up to 6 weeks)

Above Knee (AKA)

Below Knee (BKA):

- ❖ PAD or PAD w/ DM causes more than ½ of amputations
- ❖ Trauma 2nd leading
- ❖ DM increased risk for BKA

Glascow Coma Scale (GCS)

Eye opening:

4 SPONTANEOUSLY

3 TO SOUND

2 SECONDARY TO PAIN

1 DOES NOT OCCUR

Verbal

5 CONVERSATION COHERENT & ORIENTED

4 CONVERSATION INCOHERENT & ORIENTED

3 TALKING BUT INAPPROPRIATE

2 SOUNDS/ NO WORDS

1 NO VOCALIZATION

Motor

6 COMMANDS FOLLOWED

5 LOCAL REACTION TO PAIN

4 GENERAL WITHDRWAL TO PAIN

3 DECORTICATE

2 DECERBRATE

1 NO MOTOR RESPONSE

Best score = 15

<8 Severe head injury & coma

9-12 Moderate head injury

>13 Minor head trauma

Intracranial Pressure (ICP) (level, indications, nursing management)

Decreases cerebral perfusion – causes ischemia, cell death, (further) edema

ICP monitoring-

Manifestations:

- Severe HA
- Deteriorating LOC
- Restlessness
- Irritability
- Dilated OR pinpoint pupils
- Slow to react
- Altered RR (Cheyne-stokes)
- Deterioration motor function
- Abnormal posturing

EARLY Manifestations

- Decreased LOC
- Restlessness
- Confusion
- Increased drowsiness
- Increased Respiratory effect
- Purposelessness movements

- Pupillary changes & impaired ocular movement
- Weakness (ONE extremity or side)
- HA – constant, increased intensity, aggravated by movement OR straining

LATE Manifestations

- Respiratory OR vasomotor changes
- Increased systolic pressure
- Widening pulse pressure
- Slowing of HR
- Pulse may fluctuate rapidly
- Temp increase
- ❖ CUSHING'S TRIAD – Bradycardia, Hypertension, Bradypnea
- Projectile vomiting
- Deterioration of LOC – stupor to coma
- Hemiplegia, decortication, decerebration, flaccidity
- Cheyne-stokes breathing & arrest
- Loss of brainstem & reflexes – pupil, gag, corneal, swallowing

NORMAL ICP = 10-15 mmHG

Nursing actions:

- Aseptic technique
- Sterile dressing change
- Drainage system closed
- Limit monitoring 3-5 days
- Irrigate as needed

Osmotic diuretic

Mannitol – drives fluid from brain into blood (has a filter)

Level of Consciousness (LOC), (Indication, nursing management, complications)

AEIOU

- Alcohol
- Epilepsy
- Insulin
- Opiates
- Trauma
- Infections
- Psychogenic
- Space

I WATCH DEATH

- Infection
- Withdrawal
- Acute metabolic causes
- Trauma
- CNS
- Hypoxia
- Deficiencies
- Endocrinopathies
- Acute vascular causes
- Toxins

Nursing management

- Maintain airway
- Maintain skin integrity
- Maintain fluid status
- Maintain body temp
- Promote bowel/bladder function
- Sensory stimulation & communication

Complications:

- Respiratory distress/failure
- Pneumonia
- Aspiration
- Pressure ulcer
- DVT
- Contractures

CPP (cerebral perfusion pressure)

Level:

NORMAL CPP = 70-100

<50 = permanent neurological damage

Monitoring

Head Injury (indication, manifestation, nursing management, complications)

Expected findings:

- Alcohol or illicit drugs
- Amnesia
- CSF leakage – nose OR ears
- “Halo” sign yellow stain surrounded by blood
- Fluid test positive Glucose

Labs:

ABG –check CO2

CBC

BMP

Anti-seizure drug level

Nursing management – Increased ICP

- Elevate HOB 30 º (promote venous drainage)
- Avoid flexion/extension/rotation of head – maintain body in midline position
- Patent airway
- Admin O2 – keep PaO2 >60
- Hyperventilation to decrease ICP
- C-spine stabilization
- Safety/seizure precautions

Meds:

- Mannitol
- Barbituates
- Phenytoin
- Morphine

Nursing action CRANIOTOMY:

- Goal – decrease cerebral edema – mannitol & dexamethasone Q6 hrs for 24-72 hrs post-op

Complications:

- Brain herniation
- Hematoma & Intracranial hemorrhage
- Pulmonary edema
- Diabetes insipidus OR SIDAH
- Cerebral salt wasting

Stroke (indications, manifestation, nursing management, complications).

Hemorrhagic: secondary to ruptured aneurysm OR artery

Manifestations: several hours to days

Ischemic: (thrombotic OR embolic) – reversed w/ fibrinolytic therapy; Alteplase; tPA IF w/in 3-4.5 hours of onset

Left Cerebral Hemisphere – language/mathematics/analytic thinking

Right Cerebral Hemisphere – visual& spatial awareness &proprioception

Nursing actions:

- VS Q1-2 hrs – if SBP >180 OR DBP >110; call provider
- Temp – increased then ICP
- 02 >92%
- Telemetry

- Elevate HOB to 30 º
- Seizure precautions
- Passive ROM Q2 hrs to affected extremity

Meds:

- Antithrombotic w/ aspirin
- Prophylaxis –DVT & Fat embolism
- Lipid lowering w/ high intensity statin therapy
- BP reduction
- Antiepileptic – only for seizures

Complications:

- Dysphagia & aspiration
- Unilateral neglect

"Formal" swallow evals IF initial swallow screen is failed

Spinal Cord Injury (indications, manifestation, nursing management, complications).

The level of cord involved dictates the consequences of spinal cord injury.

Risks

- Males 16-30
- High risk activities
- Impact sports
- GSW OR knife
- Alcohol/drug use
- Metastatic cancer OR arthritis of the spine
- Falls

Findings

- Lack of sensation of dermatomes below lesion
- Neck OR back px
- Inability to feel light touch – cotton ball – discriminate sharp/dull
- Absent DTR
- Flaccidity of muscles
- Severe Hypotension
- Shallow RR
- Spinal shock – total temporary loss of all reflexive & autonomic function below injury (days to weeks)

Nursing management:

- Respiratory status: 1st – O2, cough by applying abdominal pressure, Incentive spirometry & Deep breathe

- Tissue perfusion: Neurogenetic shock!
    - Decreased O2 & HR life-threatening decrease in BP
- Monitor—hypotension/dependent edema/loss of temp
- Postural hypotension

Assess:

- I&O
- Neuro status
- Muscle strength & tone
- Mobility
- Bowel & Bladder function
- Skin
- Sexual function

Complications:

- Orthostatic hypotension
- Spinal shock
- Autonomic dysreflexia – high fowlers – causes blood to quickly pool in the legs, decreasing BP

Meds:

- Glucocorticoids
- Vasopressors
- Antimuscarinic (Atropine)
- Plasma expanders
- Muscle relaxants (Baclofen)
- Cholinergics
- Analgesics
- Anticoagulants
- Stool softeners (bulk-forming laxatives)
- Vasodilators

Dementia (indications, manifestation, nursing management).

Personality changes/behavioral changes – agitation, delusions, hallucinations.

Neurodegenerative: Alzheimer's & Vascular dementia

Delirium (indications, manifestation, nursing management, prevention)

- 50% people >65
- 80% people in ICU
- Preventable/reversible
- Hypoactive → lethargy

- ❖ Hyperactive → agitation & hallucinations

Prevention:

→ Orientation: clocks/calendars/windows w/out outside view/reorientation

→ Cognitive: visits from family, avoid over stimuli @ night

→ Physiologic sleep: nursing/medical procedures avoided @ night (reduce noise)

→ Early mobilization avoid restraints

→ Visual/hearing aids

→ Avoid problematic meds: opioids, diphenhydramine, benzodiazepines, anti-emetics, corticosteroids

→ Avoid medical tx: hypoxemia/infections

→ Manage px

→ Meds in prevention: melatonin may show promise

Treatment:

- Manage agitation – "what is the outcome of the behavior and that is outcome acceptable"
- Non-pharmacological: high noise ambient, poor lighting, lock windows, frequent room changes, restraints worsen confusion!
- Neuro meds: low dose of haloperidol, risperidone, ziprasidone, olanzapine
- Benzodiazepines: overprescribed for pts w/ delirium
- Cholinesterase inhibitors: do NOT have a role in tx delirium