FVD HYPOVOLEMIA	CAUSE	ASSESS	INTERVENTION	Teaching
HYPOVOLEMIA (ISOTONIC) **diminished blood volume** H2O and electrolytes lost equally loss of isotonic fluids from ECF compartment osmolarity remains normal no fluid shift between compartments decreased circulating blood volume and inadequate tissue perfusion If hypovolemia is severe it will decrease cardiac preload, which decreases CO causing shock	burns, polyuria, NG suction, low intake (but most often from loss), fever, fistulas, V & D, pancreatitis, acute intestinal blockage, crushing injury trauma Tube feeding – if not being given H2O ileostomy hemorrhage **PERFUSION ASSESSMENT** Fluid Deficit pulse rate ↑ pulse quality weak/thready BP ↓ postural hypotension flat neck and hand veins in dependent positions peripheral pulses - weak, diminished capillary refill - >3 mouth -dry with fissures and paste-like coating skin turgor - poor	**OXYGENATION ASSESSMENT** **Fluid Deficit** ↑rate ↑depth When accompanied by acidosis–deep and rapid (Kussmaul breathing) **NUTRITION/ELIMINATION ASSESSMENT** **Fluid Deficit** ↓motility diminished bowel sounds constipation Thirst Weight loss Anorexia Nausea & vomiting ↓urine output **COGNITION/NEURAL REGULATION ASSESSMENT** **Fluid Deficit** ↓CNS activity flat affect at first – progresses to apprehension, restlessness, lethargy, confusion If circulation to cerebral tissues so impaired –delirium and coma **LABS TESTS (URINE)** Urine specific gravity (1.003-1.030) Urine osmolality Increased fluid volume deficit	**Body's compensation** Venous and arterial constriction Increased heart contractility All together increase perfussion and MAP (mean arterial pressure) **Body's Restorative** Renin ADH Both increase effective circulating volume	should include: maintaining adequate fluid intake O O the increased risk for Fluid volume deficit in the elderly the increased risk for fluid volume deficit with illness to monitor a daily weight

Thirst ↑ req of H_2O intake - center: hypothal. stim. by ↑ osmolarity dry mouth/throat
Also renin-angio II
Earliest sign of FVD

ADH - made in hypothal, stored pituitary
saves H_2O

Aldosterone - adrenal cortex
Saves Na
wastes K

ADH suppressed by
hypervolemia
brain tumor
ANP
CO_2 inhalation
acute alcohol
lithium
exp. to cold
↑ plasma vol
↓ plasma osmol.

Breathing - med. oblong. ↓ CO_2 retain - O_2 receptors/arteries

ADH released ē stress, exercise ↓ plasma vol.
↑ plasma osm. narcotics.

FVD	CAUSE	S/S		INTERVENTION
FLUID VOLUME DEFICIT DEHYDRATION (HYPERTONIC) Water loss exceeds electrolyte loss Alterations in concentrations of specific plasma electrolytes increases the osmolarity (primarily sodium) of the remaining plasma causing fluids to move from the ICF into the plasma and interstitial fluid spaces fluid shift results in cellular dehydration and shrinkage Fluid shift also causes plasma volume to approach or perhaps exceed normal levels No hypovolemic shock symptoms Excitable membrane activity and cardiac contractility are affected Risk factors: diabetes insipidus, adrenal insufficiency, osmotic diuresis, hemorrhage, coma, third space shifts		Watery diarrhea Systemic infection ↓ albumin Renal failure Fever Diabetes insipidus Ketoacidosis — hypertonic w/o H2O Tube feedings Dysphagia Impaired motor function Impaired thirst Unconsciousness Hyperventilation Excessive fluid replacement (hypertonic) Excessive sodium bicarbonate administration postural hypotension, rapid weak pulse Laboratory data: elevated BUN in relation to serum creatinine, increased hematocrit Serum electrolyte changes may occur	ADH	Oral fluids IV solutions Compensatory mechanisms for hypertonic dehydration occur in response to the ↑ECF osmolarity **Dehydration with elevated sodium level** tx with hypotonic fluid **DRUG THERAPIES** **Fluid Deficit** Antidiarrheal Antimicrobial Antiemetics Antipyretics Oral Rehydration Solutions

FLUID IMBALANCE AND NURSING PROCESS

NURSING ASSESSMENT OF FLUID BALANCE

Height and weight

Changes in daily weight good indicator of fluid losses or excesses

One liter of water weighs approximately 1 kg (2.2 lbs)

1 lb corresponds to about a change of 500 ml

HISTORY

Tightness of clothing, rings, and shoes

palpitations or lightheadedness moving from lying to sitting or standing (Orthostatic Hypotension)

Abnormal or excessive fluid losses or gains

chronic or recent acute illnesses

recent surgeries

medications

urine output

recently engaged in strenuous exercise

environment

NURSING INTERVENTIONS

Prevent Imbalance

Avoid potential causes

Teach patient prevention

Identify fluid imbalance (deficit or excess)

Fluid management

Drug therapy

Manage other related Nursing Diagnoses

Monitor I&O, weight

NURSING DIAGNOSES RELATED TO FLUID BALANCE

- Cardiac Output, altered
- Oral Mucous Membranes, altered
- Potential for Dysrhythmias
- Constipation
- High Risk for Injury
- Knowledge Deficit
- High Risk for Impaired Skin Integrity
- Ineffective Airway Clearance
- Potential for Hypovolemic Shock
- Impaired gas exchange
- Ineffective tissue perfusion
- Potential for electrolyte imbalances

NURSING PROCESS -EVALUATION

- ongoing process
- outcome criteria provide measures for determining effectiveness of care
- determine whether goals have been met, partially met, or not met at all
- if not been met -re-evaluate
- new assessment needed to alter the plan
- The patient, family, and the health care team participate in the evaluation process, when appropriate.

Protein loss

•Nephrotic syndrome, a kidney condition in which extensive losses of albumin occur on a daily basis which causes severe debility,

•Hepatic cirrhosis, a chronic liver disease whereby the production of albumin is severely reduced to the point that the patient has severe swelling in the abdomen and legs,

•Conditions of the intestine that allow for the leakage of protein through their walls, collectively known as protein-losing enteropathies, which again results in severely low albumin levels, generalized swelling, weakness and severe debility

LIFESPAN CONSIDERATIONS

Infants and young children

- greater percentage of water than adults
- greater water needs, higher risk for FVD
- aren't able to independently respond to thirst

Elderly

- decreased thirst sensation
- higher percentage of fat (less water)
- changes in the kidney which affects the ability to concentrate urine

↓ aldosterone

↑ time to rebound & F/E imbal.

RISK FACTORS FOR IMBALANCE

Nutritional issues

Lifestyle lots exercise, alcohol.

Social/Spiritual/Cultural risk factors

Medical Therapies lasix, IV ther, blood repl.

Chronic or recent acute illnesses

HF, etc.

bulemia, anorexia, psychogenic polydipsia

PATIENT OUTCOMES

The patient will have a balanced fluid level, prior to discharge, as shown by:

electrolyte lab values WNL

a balanced I&O for 48 hours

a stable daily weight x 2 days

Patient stating symptoms are resolving

COLLABORATIVE CARE PLANNING

Nutritional Consult

Occupational Therapy Consult

Case Management/Social Work Consult

disease + drugs = F/E imbal.

Sweat = Na^+ Cl^- K^+