DISEASE

HYPERVOLEMIA

PATHOPHYSIOLOGY

- Too much fluid on board (in veins)
- Isotonic expansion of ECF (excessive fluid in the ECF)
- Abnormal retention of water and sodium
- Excess sodium intake causes the body to retain water, so that there is too much of both
- Causes circulatory overload and interstitial edema; when severe or when it occurs in a client with poor cardiac function, heart failure and pulmonary edema can occur
- FLUID VOLUME EXCESS

CLINICAL MANIFESTATIONS

- Vitals: tachycardia, bounding pulse, hypertension, tachypnea, increased CVP
- Neuromuscular: weakness, visual changes, paresthesias, altered level of consciousness, seizures (if severe, sudden hyponatremia/water excess)
- GI: ascites, increased motility, liver enlargement, diarrhea
- Respiratory: crackles, cough, dyspnea
- Polyuria (increase urine output, large amounts of dilute urine)
- Peripheral edema due to the excess of fluids within the body and lungs, resulting in:
    - Weight gain
    - Distended neck veins (JVD)
    - Increased urine output
    - Skin cool to touch with pallor

NURSING INTERVENTIONS & PATIENT TEACHING

NURSING CARE

- Monitor I&O and daily weights (a weight gain or loss of 1 kg [2.2lbs] in 24 hrs is equivalent to 1L of fluid)
- Assess breath sounds
- Monitor peripheral edema
- Maintain sodium-restricted diet as prescribed
- Maintain fluid restrictions if prescribed
- Encourage rest
- Monitor patients receiving diuretics
- Position in semi-Fowler's or Fowler's position, & reposition to prevent tissue breakdown in edematous skin
- Use a pressure-reducing mattress, and assess bony prominences on a regular basis
- Monitor blood sodium and potassium levels
- Decrease IV fluids

PATIENT EDUCATION

- Weigh daily & notify provider if 1/2lb weight gain in 24 hrs or 3lb weight gain in 1 week
- If excessive sodium intake is cause, consume a low-sodium diet, read food labels to check sodium content, and keep a record of daily sodium intake
- Adhere to fluid restrictions if prescribed

RISK FACTORS

Failure to excrete fluid!

- Compromised regulatory systems (heart failure, kidney disease, cirrhosis)
- Overdose of fluids (oral, enteral, IV)
- Fluid shifts that occur following burns
- Prolonged use of corticosteroids
- Severe stress
- Hyperaldosteronism
- Hormonal changes
- High salt diet

DIAGNOSTICS

Laboratory tests:

- BNP, CBC, CMP, urine sample
- Hct & Hgb (hemoglobin): decreased
- Blood (serum) osmolality: decrease with water/fluid excess
- Urine sodium: decreased
- Blood (serum) sodium: decreased
- Urine specific gravity: decreased
- BUN: decreased due to plasma dilution

Lab Draws & Imaging:

- Blood/urine samples
- CXR/ECHO

MEDICATIONS

Give diuretics, if prescribed:

- Lasix
- HCTZ
- Osmotic diuretics may be described initially to prevent severe electrolyte imbalances

POSSIBLE COMPLICATIONS

Pulmonary Edema

- Caused by severe fluid overload
- Fluid shifts to lungs
- Manifestations include anxiety, tachycardia, increased vein distinction, premature ventricular contractions, dyspnea at rest, change in level of consciousness, restlessness, lethargy, ascending crackles (fluid level within lungs), and cough productive of frothy pink-tinged sputum
- Nursing actions:
    - Position the patient in high-Fowler's to maximize ventilation
    - Administer oxygen, positive airway pressure, and/or possible intubation and mechanical ventilation
    - Administer morphine, nitrates, and diuretic as prescribed if blood pressure is adequate