

Dehydration

PBL; First case



KING SAUD UNIVERSITY

COLLEGE OF MEDICINE

FIRST YEAR

432 TEAMS

October 25, 2012

Done by: **Shaikha Al-Dossari**

Definition:

Loss or deficiency of water in body tissues. The condition may result from inadequate water intake and/or from excessive removal of water from the body; for example, by sweating, vomiting, or diarrhea.

Symptoms:

- Great thirst.
- Nausea.
- Exhaustion.
- Low or no urine output; urine looks dark yellow.
- Dry or sticky mouth.
- Low blood pressure.
- Dizziness.
- Loss of appetite.
- Lethargy.

Causes:

- Vomiting or diarrhea.
- Excessive urine output, such as with uncontrolled diabetes or diuretic use.
- Excessive sweating (for example, from exercise).
- Fever.
- Excessive consumption of alcoholic beverages.
(Because alcohol is a diuretic and thus, drinking excessive amounts of alcohol not only creates an electrolyte imbalance, it can also prevent the body from being able to absorb water in support of hydration).

Differential Diagnosis (Hypothesis):

- Shock.
(which is a condition associated with circulatory collapse, when the arterial blood pressure is too low to maintain an adequate supply of blood to tissues).
- Cholera
(Because diarrhea and vomiting are the main symptoms of this disease).
- Gastroenteritis (for the same previous reason)
- Diabetes insipidus

Risk Factors:

- Working or exercising outside in hot, humid weather.
- Living at high altitudes.
- Chronic illnesses (e.g. diabetes, alcoholism, and adrenal gland disorders).
- Cold/Sore throat (because you're less likely to feel like eating or drinking when you're sick).

Tests:

- Blood chemistries (to check electrolytes, especially sodium, potassium, and bicarbonate levels).
- Urine specific gravity (a high specific gravity indicates significant dehydration).
- Blood urea nitrogen (BUN), may be elevated with dehydration.
- Creatinine (may be elevated with dehydration).
- Complete blood count (CBC) to look for signs of concentrated blood.

Questions to Ask Your Patient:

- When did the symptoms begin?
- Are you taking any medications currently?
- Do you know what your weight was before you were ill?
- Have you recently eaten any food that you suspect was spoiled?
- Are you able to keep down any food or drink?
- How recently have you urinated?
- Have you recently traveled to another country?

(You should know at least 4 questions for the exam)

Treatment:

- Drink plenty of water.
- Drink a rehydration solution (which should contain a mixture of potassium and sodium salts, as well as glucose or starch).
- Avoid certain foods and drinks (e.g. milk, sodas, caffeinated beverages, fruit juices or gelatins, and salty foods which don't relieve dehydration but may make symptoms worse)

Note that severe cases require [oral rehydration therapy](#) or intravenous administration of [normal saline](#) or water and salts (which have been lost with the water).

Why Saline solution but not water?

Water is a hypotonic solution, meaning it has less salt concentration than the body fluids. A hypertonic solution would have a salt concentration greater than that of the body fluids. And isotonic saline solution, or 0.9% salt in water solution, is balanced with the body fluids. This means it will not cause fluids to shift from one compartment to another within the body when it is infused through an IV. Salt attracts water and will take water with it when it shifts from one compartment to another. So, when a patient needs fluids to combat dehydration, an isotonic saline solution can be administered without either pulling fluid out of cells and dehydrating them.

Prevention:

- Drink fluids frequently, even if not feeling particularly thirsty.
- Eat hydrating foods, such as fresh fruits and vegetables.
- Drink extra water if eating dry or salty foods.
- Do not drink coffee, colas, or other drinks that contain caffeine. They increase urine output and lead to a faster dehydration.

Complications:

- Heat injury.
- Swelling of the brain (cerebral edema).
- Seizures.
- Low blood volume shock (hypovolemic shock).
- Kidney failure.
- Coma and death.

Learning Objectives:

- ✓ Understanding the physiology of body fluids, and factors affecting body fluid homeostasis.
- ✓ Understanding the mechanisms responsible for the development of dehydration.
- ✓ Understanding the physiological basis of heat production and heat loss.
- ✓ Describe the role of stress and environmental factors in the development of syncope.
- ✓ Understand the basis of first-aid management and the functions of ambulance service.
- ✓ Understand the significance of resilience and survival mechanisms in coping with stress.

Best of luck,

Shaikha Al-Dossari