

Urinalysis and Body Fluids CR9

Unit 5

3 Sweat Fluid Analysis

Sweat Fluid Analysis - objectives

1. Define cystic fibrosis (CF).
2. Describe the methodology of the sweat chloride test.
3. Analyze the sweat chloride values seen in patients suspected of having CF

Cystic Fibrosis (CF)

- Cystic fibrosis
 - 1/25 white Americans are carrier of CF gene
 - Autosomal recessive, affects @ 1/1500 - 1/2000 Caucasian births.
 - Most common fatal inherited disease of Americans
 - 1000 new cases diagnosed / year
 - Most patients diagnosed before 2 years of age
 - If diagnosed early, many will live to adulthood; but @ $\frac{1}{2}$ die before age of 30.
 - Affects mucous secreting glands
 - Very thick mucous produced
 - Lungs, pancreas, GI tract, sweat glands

CF - Symptoms vary:

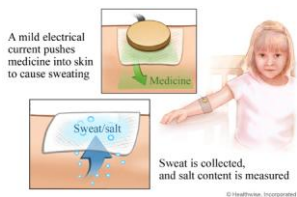
- CF Symptoms
 - Coughing due to respiratory distress & frequent lung infections
 - Viscous stools cause GI obstructions
 - Pancreatic insufficiencies
 - Leads to frequent greasy, bulky stools
 - Failure to thrive
 - Salty-tasting skin

CF - Treatments vary:

- CF Treatments:
 - Mucolytic agent
 - Bronchodilator to liquefy and expedite removal of mucous from lungs
 - Antibiotics
 - Anti-inflammatory medications such as ibuprofen
 - Physical therapy - breathing exercises

Sweat test - Laboratory Procedure

- (Pilocarpine iontophoresis)
 - Pilocarpine - chemical that will induce sweating
 - Iontophoresis - mild electrical current
 - <http://www.cff.org/AboutCF/Testing/SweatTest/>



Sweat test - Laboratory Procedure

- (Pilocarpine iontophoresis)
- Pilocarpine - chemical that will induce sweating
- Iontophoresis - mild electrical current
 - Clean area
 - Induce new sweat formation
 - Collection on filter paper OR Collection in tube OR
 - Directly measure on skin with chloride ion selective electrodes / ISEs
 - Test sweat for chloride concentration
 - <http://www.cff.org/AboutCF/Testina/SweatTest/>



Sweat Testing

- Results:
 - Normal Sweat chloride levels < 30 mEq/L (mmol/L)
 - Sweat chloride levels of 40-70 mEq/L are borderline and must be repeated.
 - Sweat chloride (or sodium) levels greater than 50 mEq/L are consistently seen in 98% of CF patients.

Reference Listing

- > Please credit those whose work and pictures I have used throughout these presentations.
- > Lillian Mundt & Kristy Shanahan, Graff's Textbook of Urinalysis and Body Fluids, 2nd Ed.
- > Susan Strassinger & Marjorie Di Lorenzo, Urinalysis and Body Fluids, 5th Ed.
- > Wikipedia, the free encyclopedia
 - > www.wikipedia.org
- > Cystic Fibrosis Foundation
 - > www.cff.org/AboutCF/
