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Sweat test.

CYSTIC FIBROSIS

Weighing bottle (≈ 100 cc capacity) ~~containing~~ ^{containing} ≥ 2 " square gauze rinsed & distilled water & dried to constant weight in 100° oven. Stored, covered, in desiccator. Immediately before use covered bottle containing gauze is weighed. Gauze is placed on rinsed and dried area of patient's back or abdomen and covered & plastic sheet secured & tape. After ≥ 1 hr gauze is returned to bottle & to lab. Immediately weigh to determine wt of sweat. Dilute & dilute H^+ NO_3 . (20 cc 2M H^+ $\text{NO}_3 \rightarrow 1000$ cc). Dilute $\approx 1/100$. i.e. if sweat weighs 0.500 gm. (which is = 0.5 cc), dilute to 50 cc. (need at least 20 cc for determination of Na^+ & Cl^-).
Let stand overnight & then weigh to determ. exact wt of sweat & H^+ NO_3 .
Factor: dilution = $\frac{\text{Sweat} + \text{H}^+ \text{NO}_3}{\text{Sweat}}$

Chloride: schales & schales

use 1-5 cc diluted sweat. Titrate & 1 meq/L $\text{Hg}(\text{NO}_3)_2$, using diphenyl carbozone as indicator.

Calculation: determine cc $\text{Hg}(\text{NO}_3)_2$ / cc diluted sweat. cc $\text{Hg}(\text{NO}_3)_2 = \frac{\text{cc}}{\text{meq/L}} \times \text{diluted sweat}$
do blank determ. on H^+ NO_3 & subtract value from above.

Sodium:

use flame photometer - if diluted 1/100 rdy will be at .1 to .5 for normal.

also do blank on hi NO_3 .

K - same as na - but rdy are very low.

Solutions

Diphenylcarbazone: dissolve 100 mg 5-diphenylcarbazone in 95% alcohol. dilute to 100 cc. Store in dark in refig. use 4 or 5 drops. Good 1 month.

Hg NO_3 : Put 200 cc H_2O in 1L volumetric. Add 20 cc 2N HNO_3 . Add 0.162 g. mercuric nitrate. Dissolve & dilute to volume = 1 mg/L Hg.
Stable indefinitely.

pH of solution to be titrated should be bet 4.5-6.
Use glass tipped burette. (metal reacts w $\text{Hg}(\text{NO}_3)_2$)

Values:

Na	normal	10 - 120 mg/L
	abnorm	80 → 190
Cl	norm	10 - 80
	abnorm	60 → 160
K	norm	→ 12
	abn	18 →