ENHANCEMENT OF NET SODIUM AND WATER ABSORPTION IN ACUTE HUMAN CHOLERA BY INTESTINAL GLUCOSE LAVAGE

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Net sodium and water fluxes in the small intestine were studied in patients with acute cholera by means of non-absorbable marker techniques. A multilumen polyethylene tube swallowed by the patient was positioned in the jejunum or ileum. A solution matching the electrolyte concentrations of the the intestinal contents was infused through the first port of the triple lumen tube. BSP, PEG and Cr^{51} were used as non-absorbable markers.

Samples were collected at each of two ports distal to infusion at a constant rate. Collection periods were 1 hour in length.

Net fluxes were determined in the absence of glucose, in the presence of glucose, and again in the absence of glucose.

In 15 patients with acute cholera, 9 jejunal and 6 ileal studies were done. Glucose produced a significant change in net water and sodium flux out of the lumen over the 20 cm study segment.

Studies on the same patients in convalescence failed to demonstrate any significant effect of glucose on net water or sodium fluxes.

Three colon studies on convalescent patients have shown only a slight negative effect of glucose on sodium and water flux over the 20 cm study segment.

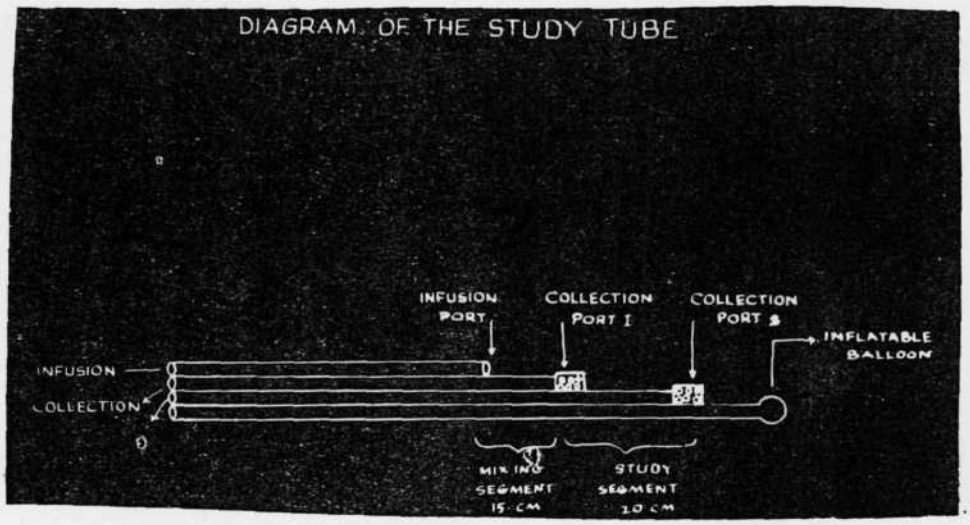
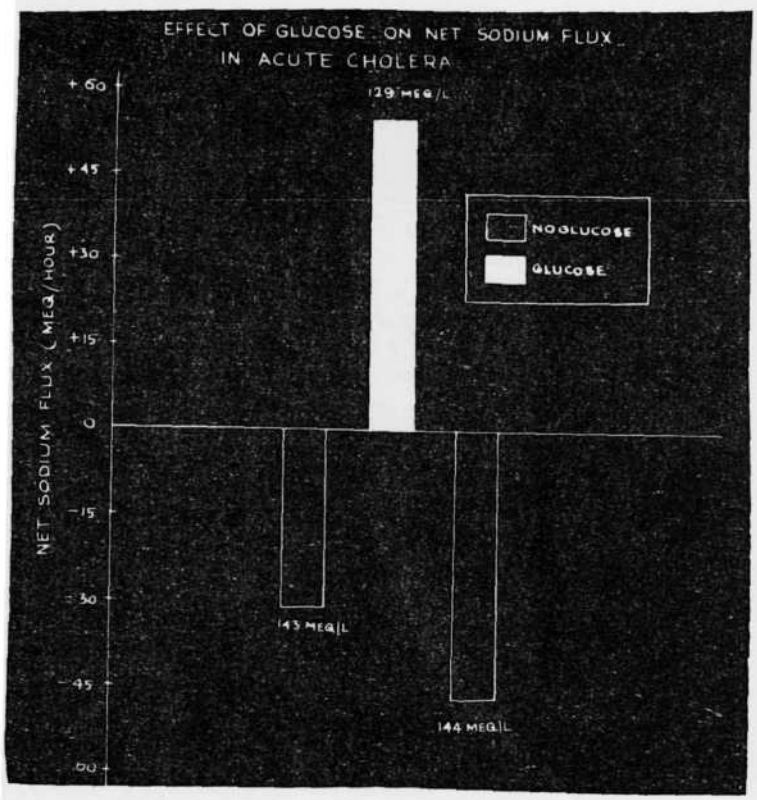
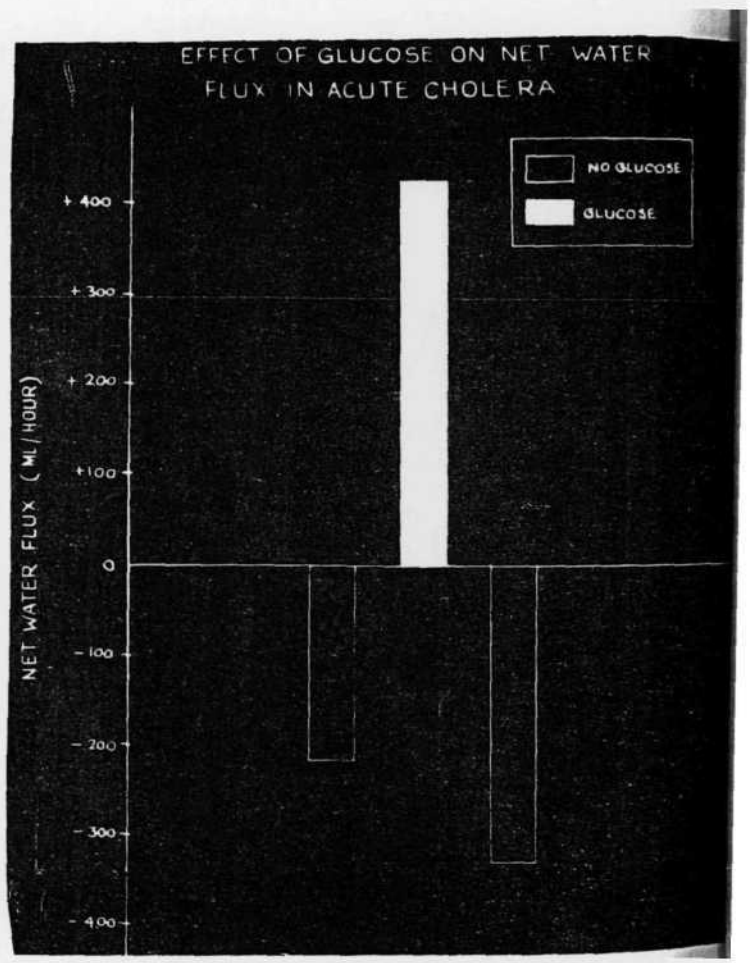
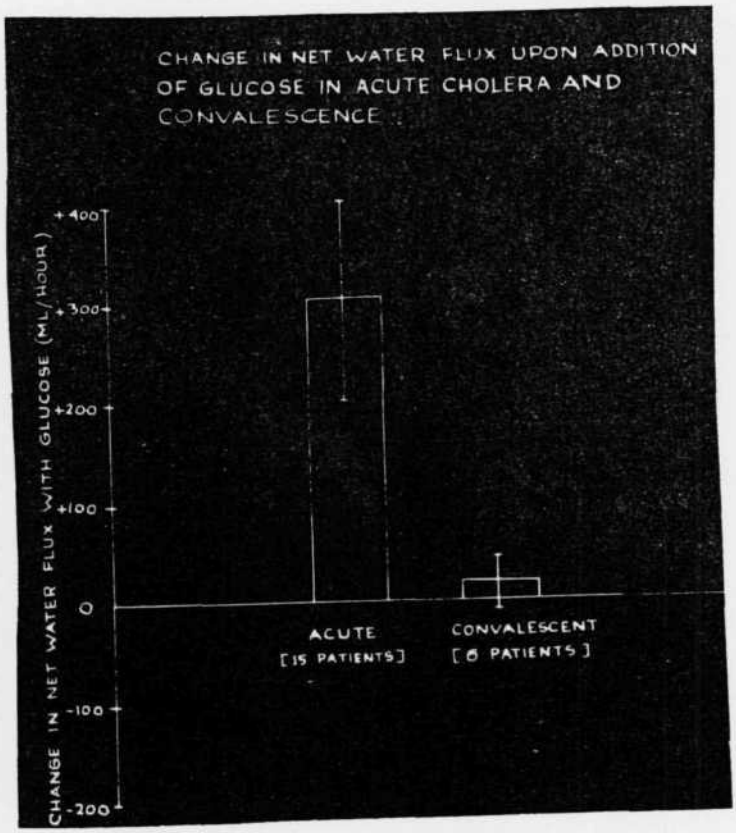
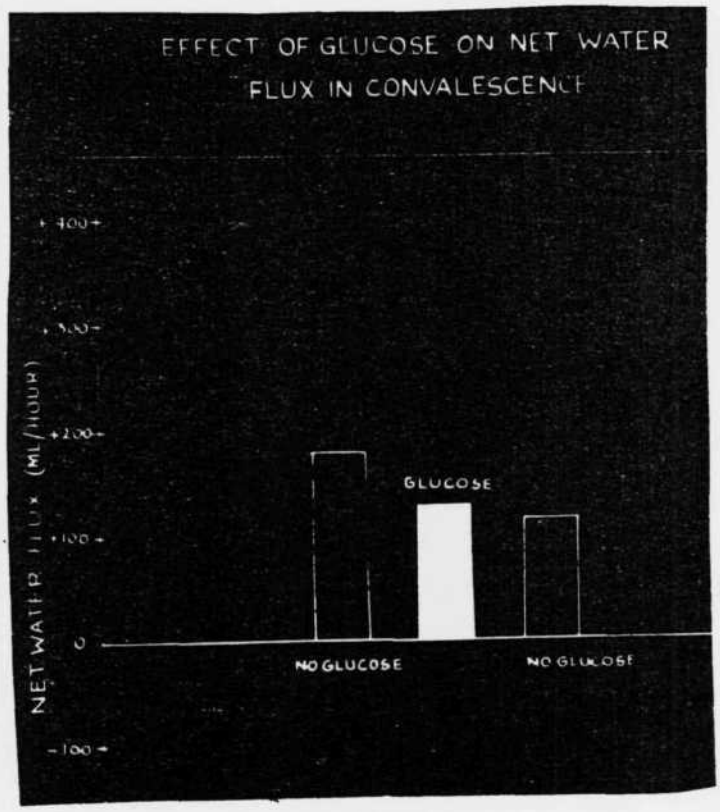


DIAGRAM OF THE STUDY TUBE
INFUSION PORT
COLLECTION PORT I
COLLECTION PORT 2
INFLATABLE BALLOON
INFUSION
COLLECTION
MIXING SEGMENT 15 CM
STUDY SEGMENT 10 CM


EFFECT OF GLUCOSE ON NET SODIUM FLUX IN ACUTE CHOLERA
NET SODIUM FLUX (MEQ/HOUR)
+60
+45
+30
+15
0
-15
-30
-45
-60
129 MEQ/L
143 MEQ/L
144 MEQ/L
NO GLUCOSE
GLUCOSE


EFFECT OF GLUCOSE ON NET WATER FLUX IN ACUTE CHOLERA
NET WATER FLUX (ML/HOUR)
+400
+300
+200
+100
0
-100
-200
-300
-400
NO GLUCOSE
GLUCOSE


CHANGE IN NET WATER FLUX UPON ADDITION OF GLUCOSE IN ACUTE CHOLERA AND CONVALESCENCE
CHANGE IN NET WATER FLUX WITH GLUCOSE (ML/HOUR)
+400
+300
+200
+100
0
-100
-200
ACUTE
[15 PATIENTS]
CONVALESCENT
[8 PATIENTS]


EFFECT OF GLUCOSE ON NET WATER FLUX IN CONVALESCENCE
NET WATER FLUX (ML/HOUR)
+400
+300
+200
+100
0
-100
GLUCOSE
NO GLUCOSE
NO GLUCOSE

SYMPOSIUM ON CHOLERA

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