

REDUCTION OF STOOL OUTPUT IN CHOLERA BY
GLUCOSE AND ELECTROLYTE LAVAGE

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Cholera patients may put out great quantities of stool - up to 1300 ml/hour - requiring prolonged intravenous replacement. Many in vitro and in vivo studies have shown that actively transported sugars (such as glucose and galactose) enhance the absorption of sodium and water from the small intestine, while sugars not absorbed against a concentration gradient (such as fructose) do not. We have applied this knowledge and have succeeded in reducing the stool output in cholera patients by lavaging their intestines with glucose containing electrolyte solutions.

In the natural course of cholera treated with intravenous fluids only there is a rather linear decrease in stooling rate: the slope of the decrease depends on the rate at the beginning of the illness. For our study of the effect of glucose lavage on this pattern we chose only the very heavily stooling patients (those passing 500 ml/hour or more at the outset). By means of polyethylene tubing we lavaged into the intestines an electrolyte solution with the approximate composition of cholera stool with or without added sugar at the rate of one liter an hour for periods of 12 to 16 hours.

A total of 10 patients were studied. A statistically significant reduction in net stool output rate was achieved in all patients whenever glucose was in the lavage solution. There was no significant change in the stool pattern when only an electrolyte solution was used or when there was no lavage.

Galactose in one patient gave the same result as glucose but fructose in two patients was not effective.

A 5% glucose solution gave a greater reduction in net stool output than a 2% glucose lavage as more glucose was available over a longer surface area of small intestine.

The implications of this study in delineating the pathophysiology of cholera and in providing a possibly dramatic form of therapy will be discussed.

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