SUMMARY AND CONCLUSIONS

SUMMARY

Hyperglycemia in non-diabetic infants with hyperosmolar dehydration resulting from gastroenteritis occurs more frequently than was previously suspected. Hypoglycemia also, may be encountered in cases of dehydration specially in young children with long continued fasting. So, the present work was chosen to study the changes in blood glucose concentration and their possible causes in different types of dehydration of infantile diarrhea.

Infants (138 patients) suffered from acute diarrhea with different grades of dehydration, were chosen for this study. They were selected from infants attening the outpatient clinic of the Rehydration Centre, ABU EL REESH Hospital, Cairo University. According to the level of serum sodium, they were classified into the following groups : (1) isonatremic group (88 infants), (2) hypernatremic group (22 infants), (3) hyponatremic group (11 infants), (4) a normal control group (15 infants) was used for comparison, and (5)

follow-up group (hypernatremic,10 infants & isonatremic 7 infants) where they were investigated & studied during dehydration & compared to that after rehydration. Hyperglycemic & hypoglycemic cases were selected from the above mentioned groups & collected in 2 separate groups.

Venous blood was collected from each case & was investigated for :

(1) Na^+ & K^+ , by the ion selective electrode (NOVA-1, Na^+ / K^+ analyser);
(2) glucose, by glucose-oxidase enzymatic method
(3) blood urea nitrogen, by the modified Berthelot procedure, colorimetric method;
(4) pH, by the ABL 2 Blood Gas Analyser;
(5) hematocrit, by the Micro-Method; and
(6) insulin & cortisol, by the radioimmunoassay technique.

The results of the different groups were statistically analysed as compared to their control. These results were as follows :

I - Sodium levels showed :

1 - A very highly significant increase in the hypernatremic group, hyperglycemic cases & in the hypernatremic dehydrated follow-up group as compared to their control.

2 - A significant increase in the isonatremic group & in the hypoglycemic cases as compared to control.

3 - A very highly significant decrease in the hyponatremic group as compared to control.

II- Potassium levels showed :

1 - A very highly significant decrease in the isonatremic & hyponatremic groups as compared to control.

2 - A significant decrease in the hypoglycemic cases as compared to control.

III- Glucose levels showed :

1 - A very highly significant increase in the hyperglycemic cases & in the hypernatremic dehydrated follow-up group as compared to their control.

2 - A significant increase in the hypernatremic group & in the isonatremic dehydrated follow-up group as compared to their control.

3 - A very highly significant decrease in the hypoglycemic cases as compared to control.

4 - Blood glucose levels in the 2 hyperglycemic cases in the dehydrated follow - up group returned to normal levels by rehydration therapy only.

5 - In the hyperglycemic cases, it was found that 58.3 % were hypernatremic & 41.66 % were isonatremic, while the percentage of hyperglycemia in hyper-& isonatremic groups were 21.8 % and 5.2% respectively.

6 - In the hypoglycemic cases it was found that the precentage of the iso-, hyper- & hyponatremic groups were 81.25%, 12.5%, & 6.25% respectively.

7 - A significant correlation was found in the hyperglycemic cases between glucose & cortisol levels only.

IV - Hematocrit levels showed :

1 - A very highly significant increase in the isonatremic, hypernatremic groups, hyperglyc-

emic & hypoglycemic cases as compared to control.

2 - A highly significant increase in the hyponatremic group as compared to control.

3 - A significant increase in the hypernatremic dehydrated follow-up group as compared to that after rehydration.

V - pH, showed :

1 - A very highly significant decrease in the isonatremic, hypernatremic, isonatremic dehydrated follow-up groups, hyperglycemic & hypoglycemic cases as compared to their control.

2 - A highly significant decrease in the hypernatremic dehydrated follow-up group as compared to that after rehydration.

VI - Blood urea nitrgen levels showed :

1 - A very highly significant increase in the isonatremic, hypernatremic groups, & hyperglycemic cases as compared to control.

2 - A highly significant increase in the isonatr-

emic dehydrated follow-up group as compared to that after rehydration.

3 - A significant increase in hypoglycemic cases & in the hypernatremic dehydrated follow-up as compared to their control.

VII- Insulin levels showed :

1 - No significant change in all the groups as compared to their control.

2 - In the twelve hyperglycemic cases, the insulin levels in six of them were below sensitivty of the technique (i.e subnormal) & in five cases they were within normal range &still below the level corresponding to the hyperglycemia. In the last case it was much increased.

VIII- Cortisol levels showed :

1 - A very highly significant increase in the isonatremic, hypernatremic, hyponatremic groups, hyperglycemic, & hypoglycemic cases as compared to control.

2 - A significant increase in the hypernatremic dehydrated follow-up group as compared to that after rehydration.