Summary and Conclusion

Acute diarrhea is one of the major causes of childhood morbidity and mortality allover the world. In Egypt, it was estimated that about 50% of all deaths in children under 3 years of age were due to acute diarrhea, but the present scientific knowledge about the management of acute dehydration permits saving of almost all cases.

Acute gastroenteritis may lead to widespread complications in different body systems, especially the kidney. Salt and water depletion as a result of diarrhea and vomiting are by far the commonest causes of hypovolemic shock in the pediatric age group. Consequently, it is the most important cause of acute renal failure in developing countries. Ultrasonography of he urinary system has become an increasing important imaging modality. This is a non invasive procedure and diagnostic images can be obtained with little discomfort to the patient. Injection of contrast medium is avoided and sedation is rarely necessary.

This work comprised 29 cases with acute gastroenteritis, severely dehydrated and shocked admitted to the gastroenteritis unit of Benha University and of Cairo University children hospital. Their ages varied between 1- 18 Months and were 17 males and 12 females. Immediately after admission the degree of dehydration determined & absence or presence of shock was assessed . Renal sonography was done on admission and four days after

The study results concerning sex distribution revealed predominance of males by 58.6% over females 41.4% in seeking for medical advise by parents, however these result was statistically not significant.

Concerning blood chemistry in the form of serial measure of serum sodium and potassium, the change in sodium level admission, 2 & 4 days after was not significant isonatremic type of dehydration was the predominant type in the study sample by 62.1%. Sex cases from 29 cases (20.7%) show hypernatremia all of which were under one year.

Changes in mean potassium level through the days of study was not significant .

About the renal function in the form of serum BUN, the change in the mean BUN level was statistically significant. Seven cases show BUN above 40 mg/d1(24.13%) only one case show decay to below 50% the admission result and 6 cases remained either above 50% or more .

In this work, out of 29 cases shocked with severe dehydration 25 case showed high serum creatinine on admission above 0.5 mg/dl by percentage (86.2%),they dropped to 20 cases (68.9) after two days and after four days to 13 cases (44.8%) . The change in the mean creatinine level was statistically not significant.

Concerning the renal sonographic evaluation which was done on admission and four days after. specific code was designed to assess the results taking in consideration the renal size, echogenicity and pyramidal prominence. If the picture was normal the case take score zero, increase in one parameter take one, two parameters take two, three was taken when there is an increase in the three parameters. The percentage of cases with

score from 1 to 3 on admission was 48.1 % and these percentage dropped 4 days after to 20.6% The change in songraphic findings was statistically significant. ($P < 0.0001$).

The relation between songraphic finding at day zero and successive Sodium level was not significant . The relation between sonographic findings at day zero and successive potassium level was significant only in the fourth day sampling of potassium.

The correlation between songoraphic finding at day zero and successive BUN level was not significant statistically, but the sonographic data when correlated with successive creatinine level it showed significant relationship with creatinine at days zero and four days after. The same results obtained at correlation of sonographic findings at day four with successive sodium and BUN level. The correlation with potassium level was not significant.

The correlation of sonographic data obtained at fourth day with successive creatinine level at days zero, 2 and four was all highly statistically significant.

In conclusion, infants admitted with severe dehydration and shock should have serum BUN at serial intervals to assess its decay and exclude prerenal azotemia which is a common finding in these cases. Serum creatinine is a good reflection to glomerular filtration rate, that is to say, it is the most sensitive and reliable indicator to assess renal function and detect renal impairment as a possibilities in cases of severe gastroenteritis and shock.

Ultrasonography has made an enormous impact on the investigation of the urinary tract in pediatrics.

The renal sonographic findings detected in cases with severe gastroenteritis and shock must be reevaluated at sufficient intervals, days and up to weeks to exclude reversible changes which usually detected early on admission. the correlation of serum creatinine with sonographic findings obtained of high significant value in detecting permanent renal complication of gastroenteritis.