SUMMARY AND CONCLUSION

This study was carried out on 30 children selected from El-Mansoura Children University Hospital.

I-a) Ten (10) children with CRF maintained on conservative treatment, They were 5 females and 5 males with age ranging from 6-12 years with a mean of 7.4 ± 1.89 years. The underlying renal diseases were chronic pyelonephritis in 8 patients and chronic glomerulonephritis in the remaining 2 patients.

By meticulous diagnosis and laboratory investigations: ultrasonography, CT scan, MRI and renal biopsy, 8 patients were suffering from chronic pyelonephritis (CPN) and 2 patients were suffering from chronic glomerulonephritis (CGN).

b) The same patients were subjected to a dose of sodium bicarbonate, 1-2 mEq/kg to reach a level of approximately 20 mEq/L. Specimens were collected from each patient after 4 months of duration from the start of the study.

c) The same patients were subjected to a higher dose of sodium bicarbonate, 2-4 mEq/kg to reach a level of approximately 25 mEq/L and specimens were collected after 4 months from 2nd specimens (8 months from the start of the study).

II-a) Ten (10) children with CRF maintained on regular hemodialysis selected from the Nephrology Unit El-Mansoura Children University Hospital, they were 5 males and 5 females, with age ranging from 6-12 years with a mean of 7.4 ± 1.89 . By the same methods of investigations we concluded that they were seven patients with chronic

pyelonephritis and the other three patients with chronic glomerulonephritis.

b) The patients were subjected to a dose of sodium bicarbonate, 1-2 mEq/kg to reach a level of approximately 20 mEq/L and after 4 months specimens were taken.

c) The same patients were subjected to a high dose of sodium bicarbonate, 2-4 mEq/kg to reach a level of approximately 25 mEq/L, specimens were taken after 8 months from the start of the study.

III- Ten (10) apparently normal children as a control group, 5 males and 5 females with matched age and sex.

All these groups were subjected to history taking, full clinical examination and laboratory investigations with assessment of serum levels of parathyroid hormone, 1,25(OH)2D3, serum calcium, phosphorus, and magnesium.

The mean levels of height were significantly lower in both groups than the control group all through the study denoting the presence of impaired linear growth in children with CRF.

Assessment of parathyroid hormone and 1,25(OH)2D3 was carried out in addition to the other investigations and the following results were observed:

At the start of the study (acidosis), the parathyroid hormone levels were significantly higher and the serum levels of 1,25(OH)2D3 were significantly lower in both conservative and hemodialysis groups by comparison to the control group. There is also a significant hypocalc-emia, hypomagnesemia and elevated serum phosphorus levels in both conservative and hemodialysis groups by comparison to the control group .

After high dose of sodium bicarbonate treatment for 8 months from the start of the study, the parathyroid hormone levels show a significant drop and the 1,25(OH)2D3 serum levels show a significant rise in both conservative and hemodialysis groups by comparison to the control group . As a result also, the serum total calcium and magnesium were significantly elevated while serum phosphorus levels were significantly dropped by comparison to the control group.

The bicarbonate levels were significantly correlated negatively with PTH and positively with 1,25(OH)2D3 in conservative and hemodialysis groups after 4 and 8 months from the start of the study.

In final conclusion, the raising of the bicarbonate levels to 25 mEq/l, for eight months of follow up from the start of the study, corrected the metabolic acidosis of patients with CRF on conservative treatment and on hemodialysis with significant decrease of parathyroid hormone level and significant rise of 1,25(OH)2D3 level with correction of calcium, phosphorus and magnesium is better in the clinical outcome of the CRF patients with metabolic acidosis.