CHAPTER VI

SUMMARY AND CONCLUSION

Zinc is one of the trace elements which is essential for normal growth and development in human beings, zinc participates in many of the physiological processes specially bone formation and growth.

Magnesium affects -to a great extent - calcium absorption & metabolism, parathyroid function and vitamin D synthesis.

The aim of our study are to estimate the serum zinc and magnesium levels in rachitic infants as well as studying of the relation between maternal milk contents of zinc and magnesium and serum levels of these elements in breast fed rachitic infants.

Forty rachitic infants, along with twenty normal healthy age matched infants (control group) were the subjects of the present study. Half of each group were breast fed, while the rest were artificially fed.

Rickets was diagnosed on the basis of clinical, radiological (via roentgenographic examination of wrist region) and biochemical (via serum levels of calcium, inorganic phosphate and alkaline phosphatase activity). Also the levels of zinc and magnesium were determined in the sera of all studied subjects as well as in milk of mothers of breast fed subjects.

We found a statistically significant decrease in serum zinc level in rachitic infants compared with control group and highly significant decrease in serum zinc level in artificially fed rachitic infants when compared with artificially fed control group.

On comparing breast fed rachitic infants with the breast fed control group, there was no significant changes in the serum zinc level despite the significant decrease in level of zinc in breast milk of mothers of breast fed rachitic infants when compared with mothers of breast fed control group.

On the other hand, we found a highly significant decrease in serum zinc level in artificially fed rachitic infants when compared with breast fed rachitic infants.

These results are not only reflecting the importance of zinc for normal bone development, but also the greater bioavailability of zinc from human than that from cow's milk and cow's milk based formulas.

On comparing breast fed rachitic infants with the artificially fed rachitic infants we found significant increase in serum zinc level as well as in alkaline phosphatase activity in the breast fed group. This suggests that alkaline phosphatase activity is affected by zinc and it may reflect the body status of zinc.

As regards, magnesium on comparing artificially fed rachitic infants with artificially fed control group, there was a highly significant decrease in serum magnesium level in the artificially fed rachitic infants associated with a highly significant decrease in serum calcium level. This may reflect that normal magnesium level is essential for calcium metabolism and hypomagnesemia may be associated with hypocalcemia.

Accordingly, we recommend the following :

1. Breast feeding is much better than artificial feeding and we should insist on advising mothers to nurse their infants so as to prevent zinc deficiency and to provide better calcium source.

2. Zinc supplementation to the nursing mothers specially those of rachitic infants to provide adequate zinc to the infants through the breast milk.

3. Zinc supplementation to infants specially artificially fed and rachitic infants.

4. Alkaline phosphatase activity may be used as an easy and cheap indicators for zinc status of the body.

5. Close observation of serum magnesium level in rachitic infants and correction of any abnormal deviation in its level to avoid its effect on calcium metabolism.