SUMMARY AND CONCLUSION

Summary :

The aim of this work is to study bone turnover occurring inn rheumatoid arthritis patients using estimation of some biochemical changes as an index of this bone turnover. Alkaline phosphatase and its isoenzymes especially alkaline phosphatase bone isoenzyme was estimated as an index of bone formation while the fasting urinary calcium creatinine ratio as an index of resorption. Also the levels of serum calcium and phosphorus were estimated to find out any change which may associate bone turnover in rheumatoid arthritis. This study aimed at finding out the relation between bone turnover and drug therapy, duration of the disease and parameters of the disease activity.

Forty female patients suffering from rheumatoid arthritis comprised the material of this work. The patients were allocated into two groups according to their drug therapy, the first group comprised 20 patients receiving non steroidal anti-inflammatory drugs while the second group comprised 20 patients receiving steroid therapy.

Twenty healthy females-free from any relevant disease and matched with the patients for age-included as a control group.

All patients were examined clinically while laboratory investigations and x-ray examination were done in order to confirm the diagnosis.

Serum calcium, phosphorus, alkaline phosphatase and its isoenzymes (bone and liver fraction) were determined in the serum of the patients in each group and compared with those obtained from the control.

Fasting urinary calcium / creatinine ratio was estimated in each group and compared with that obtained from 20 female controls and also with each other.

In this study, the correlations of alkaline phosphatase isoenzymes and fasting urinary calcium creatinine ratio versus parameters of disease activity and duration of the disease were done in each group.

The results of our study demonstrated that, the mean calcium levels in the serum from patients with rheumatoid arthritis was (10.588 ± 0.38 mg/100 ml) in the first group while in the second group (10.305 ± 0.42 mg/100 ml). It was significantly higher than that of the controls (9.1 ± 0.33 mg/100 ml) but between the first and the second groups there was non significant difference.

The mean serum phosphorus levels of the patients (first group 3.750 ±0.15 mg/100 ml) and second group 3.958 ± 0.092 mg/100 ml) was insignificantly different from that of the controls (3.849 ± 0.11 mg/100 ml). Also these was non significant difference between both groups.

The mean level of alkaline phosphatase in the serum of the first and the second groups of the patients (17.732±1.53 K.A.U./ 100 ml and 16.961 ± 1.07 K.A.U. / 100 ml)was significantly higher than its mean level in the serum of the controls (10.085 ± 0.7 K.A.U.). In the first group, it was higher than the second groups but with insignificant difference.

The mean level of alkaline phosphatase bone isoenzyme in the serum of rheumatoid arthritis patients were in the first group (1.67 ± 0.332 K.A.U./ 100 ml) and second group (0.999 ± 0.22 K.A.U. / 100 ml) while in the controls, it was 0.574 ± 0.122 K.A.U. /100 ml. This increase was highly significant greater in the first group than that in the control while in the second group it was insignificantly greater than controls and in the first group it was higher than second group with insignificant difference.

The mean level of alkaline phosphatase liver isoenzymes in the first group (15.659 ± 1.33 K.A.U./100 ml and in the second group (15.962 ± 0.985 K.A.U./100 ml) were highly significantly greater than controls (9.510 ± 0.729 K.A.U./100 ml). A non significant difference was found between the first and second group.

The mean value of fasting urinary calcium / creatinine ratio in the second group (0.212 ± 0.008) was highly significantly greater than the controls (0.137 ± 0.006) and also it was significantly greater than the first group (0.181) which, in turn, was highly significantly greater than controls.

A non significant correlation was found between the alkaline phosphatase or its isoenzymes especially bone fraction (index of bone formation) and parameters of disease activity or duration of the disease.

A highly significant correlation was found between fasting urinary calcium/creatinine ratio (index of bone resorption) and duration of the disease while there was non significant correlation between this index and parameters of disease activity.

Conclusions :

From the previous study we come to the conclusion that bone turnover increased in the patients with rheumatoid arthritis than the controls as noticed from increased indices of both bone formation (alkaline phosphatase bone isoenzyme) and bone resorption (fasting urinary calcium : creatinine ratio).

Bone resorption was predominant especially in the group treated with corticosteroids.

There was insignificant correlation between indices of bone turnover and activity of the disease while there was significant correlation between the index of bone resorption and duration of the disease which may be due to prolonged impairment of physical activity present in the patients with rheumatoid arthritis.

Serum calcium level was significantly higher in the serum of the patients with rheumatoid arthritis than in the serum of the controls but this increase in the calcium level in the serum of the patient was still within the normal range while non significant difference between phosphorus serum level in the patients and controls was found.