INTRODUCTION

Urolithiasis of formation of urinary calculi at any level of the urinary tract is a common condition. Urinary calculi are worldwide in its distribution but are more common in some geographic areas as in parts of United States, South Africa, Pakistan, India and South East Asia. Geographical variation in rates of kidney stones has been observed for many years. Pakistan is situated in stone belt. Calculus diseases is endemic in Pakistan, perhaps the incidence in Pakistan is highest in the world. Purpose: To evaluate etiology and biochemical risk factors (inorganic phosphate) in the Peshawar. Subjects & Methods: Study was conducted at LHR and Hayatabad Hospitals of Peshawar for the period of nine months. Two hundred patients and same number of controls were selected. Results: The mean value of mean inorganic phosphate in non stone formers were less than that of stone formers. The mean of urinary inorganic phosphate excretion in stone formers was greater than that of non-stone formers. Conclusions: We conclude that inorganic phosphate is an independent risk factor for renal stone formation.

Key words: Serum inorganic phosphate, urinary in organic phosphate, kidney stone.
Serum inorganic phosphate in stone formers (S.F) and non-stone formers (N.S.F)

The calculated mean levels of serum inorganic phosphate are shown in table. The mean ± S.D of 200 stone formers and 200 non-stone formers was 5.07 ± 1.22 mg/dl and 4.65 ± 0.39 mg/dl respectively. The mean value in N.S.F is less than that of S.F and the difference is statistically significant (P<0.05).

Urinary phosphate excretion

The mean of urinary inorganic phosphate excretion in S.D (1017 ± 0.915 mg/24 hours) is greater than that of N.S.F (837.02 ± 19.03 mg/24 hours) and statistically it is significance (P<0.05).

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<th>Table. Serum/Urinary inorganic phosphate level</th>
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DISCUSSION

Parathyroid gland regulates the serum concentration of calcium and inorganic phosphate. Their product is always constant. Thus they are inversely related to each other. In our study at Peshawar, it was seen that serum inorganic phosphate as 5.07±1.22mg/dl and 4.65±0.39mg/dl in S.F and N.S.F respectively. Shah Jehan and Rehman demonstrated serum inorganic phosphate as 3.83 ± 0.34 and 3.43 ± 0.28 mg/dl in control adults and stone former adults respectively⁶. The difference is statistically not significant. Khanum has demonstrated serum inorganic phosphate as 4.75 ± 0.22 and 5.11 ± 0.13 mg/dl in controls and stone formers respectively⁷. The difference is being statistically not significant. Hussain showed serum inorganic phosphate as 3.99± 0.39, 3.81±0.69 and 3.57±0.96mg/dl in controls, sign episode S.F and recurrent S.F⁸. The difference between the three groups are being statistically not significant. If we compare the serum levels of inorganic phosphate of these four studies it is evident that our study at Peshawar showed statistically significant difference regarding inorganic phosphate which acts as a definitive risk factor in the upper urinary tract stone disease. Khanum reported daily excretion of inorganic phosphate as 268.61±16.00 and 272.88±1.89 mg/day respectively in stone former and non stone former. While Shah Jehan and Rehman, reported urinary excretion of inorganic phosphate 530.0±0.05mg/day and 630±0.06mg/day in S.F and N.S.F respectively⁹. Hussain et al, reported a urinary excretion of inorganic phosphate 26.3±6.59, 30.22±8.74 and 28.37±9.82 in N.S.F, S.F and control. He showed that this difference is not statistically significant⁹. In comparison of these studies with our study urinary excretion of inorganic phosphate is 1017±0.915 and 837.02±19.03 in S.F and N.S.F. In our study it was statistically significant. The difference may be due to the fact that increased meat consumption in Peshawar may produces hyperphosphaturia, the effect of increased parathyroid hormone and those having a positive family history are at increase risk of upper urinary tract stone disease.

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“Hope never abandons you; you abandon it”

(George Weinberg)