

Letters to the Editor

PARATHYROID FUNCTION IN MENSTRUAL CYCLE

Sir,

Oestrogens lead to marked acceleration of calcium uptake and retardation of its elimination in the pigeon's gut. In mammals, they inhibit the linear growth and accelerate the bone formation (4). In non-pregnant women, oestrogen administration produces increased parathyroid activity (7). In birds, plasma calcium rises during the egg-laying period (4). Whether any change in the plasma calcium occurs during the human menstrual cycle is not known. Although rise of plasma calcium in the premenstrual period has been reported, the status of parathyroid activity in the human menstrual cycle is not certain (5). We present the results of the parathyroid function tests which were carried out in 28 unmarried female medical students of 18-20 years age group, who had regular menstrual cycles. Parathyroid function tests were done thrice in one menstrual cycle : 1, in immediate postmenstrual period, 2, the mid-menstrual cycle day and 3, just before the expected date of menstruation. In a fasting individual, total plasma calcium, total plasma proteins, plasma inorganic phosphate and plasma alkaline phosphatase were measured according to the methods described by Varley (6). Phosphate clearance was measured according to Kyle et al (2) and ionic calcium was calculated from McLean and Hasting nomogram (1). The results of this study are given in Table I.

TABLE I

	<i>Postmenstrual phase</i>	<i>Midmenstrual phase</i>	<i>Premenstrual phase</i>
Total plasma calcium (mg %)	10.14±0.62	10.34±0.46	10.31±0.60
Plasma ionic calcium (mg %)	4.41±0.40	4.50±0.36	4.52±0.31
Total plasma proteins (gm %)	7.14±0.16	7.15±0.26	7.13±0.15
Plasma inorganic phosphate (mg %)	2.38±0.32	2.32±0.31	2.28±0.26
Plasma alkaline phosphatase (K.A.unites %)	5.93±1.81	5.46±1.72	5.75±2.06
Phosphate clearance (ml/min)	6.57±1.60	6.65±2.40	7.21±3.00

Although, total and ionic plasma calcium was higher in the mid-cycle and premenstrual phase than in the post menstrual phase, plasma inorganic phosphate was lowest and phosphate clearance highest in the premenstrual phase, the differences observed were not statistically significant. Total plasma proteins and plasma alkaline phosphatase also did not show any statistically significant difference. Thus, there is no evidence of the reported rise of total (5) or ionic plasma calcium level in the premenstrual period, nor of any change in the mid-cycle when the blood oestrogen levels are highest. This is consistent with the fact that in normal pregnancy, when the plasma oestrogen level is very high, hyperparathyroidism is not

present (3). It seems that the reported effect of oestrogen producing parathyroid overactivity (7) can occur only in pharmacological levels of the hormone.

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