

Turkish Journal of Medical Sciences

Turkish Journal

of

Medical Sciences


Calcium and Phosphate Excretion in Preeclampsia

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Abstract: In preeclampsia, alterations in renal function, electrolyte and water metabolism are common findings. Recent studies have suggested that preeclampsia is associated with hypocalciuria. A total of 59 women were included in the present study, 15 of whom were nonpregnant (NP) healthy women, 20 normotensive pregnant women (NTP), and 24 pregnant women with severe preeclampsia (PEP). We compared the three groups in terms of calcium and phosphate excretion, and some parameters of renal function such as serum urea, creatinine and creatinine clearance. Urinary calcium and phosphate levels in the PEP group were significantly lower than in the NP group ($p < 0.001$ and $p < 0.01$, respectively) and NTP group ($p < 0.001$ and $p < 0.01$, respectively). The serum urea levels were higher in the PEP group than in the NP and NTP ($p < 0.001$) groups. The same pattern of increase in the PEP group was valid for serum creatinine concentrations as compared with the NP ($p < 0.01$) and NTP ($p < 0.001$) levels. The glomerular filtration rate measured by creatinine clearance was lower in preeclamptic women than in normotensive pregnant women ($p < 0.01$). Patients with preeclampsia had significantly lower ($p < 0.001$) excretion of calcium than the NP and NTP groups ($p < 0.001$). Likewise, the phosphate levels were lower in women with preeclampsia than in the NP and NTP groups ($p < 0.01$). There was no correlation between parameters of renal function and calcium or phosphate excretion. Hypocalciuria and hypophosphaturia were found to be important features of severe preeclampsia and probably indirectly are related to the altered renal function seen in toxemia of pregnancy.

Key Words: Preeclampsia; calcium excretion; phosphate excretion; renal function

Turk J Med Sci 2000; **30**(1): 39-42.

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