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Correlation between blood pressure and serum creatinine levels in pregnant women: a comparative study between pregnant women with normal blood pressure and pregnancy induced hypertension

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Background: Monitoring serum creatinine alongside blood pressure measurements can offer clinicians valuable insights into the severity and progression of Pregnancy-Induced Hypertension (PIH).

Objective: This study was conducted to assess the correlation between blood pressure and serum creatinine levels in pregnant women with PIH and normal blood pressure.

Methods: A cross sectional study was designed, and the population was stratified into two categories based on blood pressure readings. Pregnant women with normal blood pressure of 120/80 mmHg on two or more occasions were selected as Group 1 and those who had blood pressure more than 140/90 mmHg on two or more occasions and not having proteinuria were selected as Group 2. The analysis focused on assessing creatinine levels by Jaffe alkaline picric acid kinetic methods. The Pearson correlation coefficient was employed to examine correlations between these parameters.

Results: Group 1 had the mean systolic blood pressure (SPB) of 116.71 (\pm 6.65) mmHg, while Group 2 had the mean SPB of 144.59 (\pm 7.62) mmHg. The mean diastolic blood pressures (DBP) of Groups 1 and 2 were 74.06 (\pm 6.23) and 91.74 (\pm 8.52) mmHg respectively. The study revealed a strong and statistically significant positive correlation between serum creatinine levels with SBP ($r= 0.742$, $p<0.001$) and DBP ($r=0.680$, $p<0.001$) across entire population. Among the subgroups, Group 1 displayed a significant positive correlation between serum creatinine levels and both SBP ($r=0.457$, $p=0.007$) and DBP ($r=0.344$, $p=0.046$). Similarly, in Group 2, a significant positive correlation was observed between serum creatinine levels and both SBP ($r=0.434$, $p=0.010$) and DBP ($r=0.352$, $p=0.041$).

Conclusions: The significant positive correlation between serum creatinine and blood pressure levels showed that monitoring serum creatinine level could potentially serve as a screening test to detect hypertensive disorders during pregnancy.