

A Study of Serum Uric Acid Levels in Preeclampsia

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Abstract

Background- Modern clinicians depend increasingly on laboratory tests for the management of the patients.

Methods-50 Patients diagnosed as having Pre-eclampsia with age between 18-37 years and 50 controls with similar age group.

Results- The mean serum uric acid level in control group was 3.40 ± 0.92 and in patient 7.50 ± 0.70 which was statistically significant ($p < 0.05$).

Conclusion- Serum uric acid levels were significantly higher in preeclampsia could be a useful indicator of the maternal and fetal complication in preeclampsia patients.

Keywords : serum uric acid, preeclampsia, laboratory.

Introduction

Modern clinicians depend increasingly on laboratory tests for the management of the patients. Hypertension is one of the common complications met with in pregnancy and contributes significantly to the cause of maternal and perinatal morbidity and mortality.

Interestingly women with a history of preeclampsia also have a higher risk for cardiovascular disease and hypertension later in life¹. The increase in uric acid level appears to coincide with the increase in the blood pressure and proceed the development of proteinuria. Uric acid

levels have been used for early diagnosis of preeclampsia². A disproportionate fall in uric acid clearance is a key feature of preeclampsia. The serum level of uric acid rises as preeclampsia progresses; a level >5.5 mg/dL is a strong indicator of the disease and a level >7.8 mg/dL is associated with significant maternal morbidity. The degree of uric acid elevation correlates with the severity of proteinuria and renal pathological changes, and with fetal demise. Recent studies suggest that hyperuricemia may also play a pathogenic role by contributing to the vascular damage and hyper-tension³.

Material and Method

50 Patients diagnosed as having Pre-eclampsia with age between 18-37 years and 50 controls with similar age group.

Blood samples were collected under aseptic precautions in plain vacutainer for serum uric acid estimation.

Patients with history of renal disease, chronic hypertension, cardiovascular disease, thyrotoxicosis, liver disease were excluded.

Uric acid estimation was done by Uricase Peroxidase Method.

Results

Table 1: Shows the mean serum Uric acid levels in patients and controls.

Serum uric acid level	Case	Control
Mean	7.50	3.40
SD	0.70	0.92
p-value	<0.05	

The mean serum uric acid level in control group was 3.40 ± 0.92 and in patient 7.50 ± 0.70 which was statistically significant ($p < 0.05$).

Discussion

In the present study, estimation of serum uric acid levels were measured in patients with pregnancy induced hypertension & preeclampsia and in normal pregnant women. Serum uric acid levels in preeclampsia and PIH patients were found to be significantly higher as compared to controls group ($p < 0.05$). The observed mean serum uric acid levels in preeclampsia and PIH patients the mean serum uric acid values were 7.50 ± 0.70 mg/dl as compared to controls which was 3.40 ± 0.92 mg/dl.

In normal pregnancy, serum uric acid level slowly decreases until about 16 weeks of gestation, secondary to plasma volume expansion, increased renal clearance, and the uricosuria effect of estrogen. For most of the 2nd trimester, the uric acid level remains stable, and then increases during the 3rd trimester because of increase catabolism/- production. Uric acid is one of the most sensitive indicators of the disease severity in pregnancy induced hypertensive disorders and can be of great help in monitoring the cause of disease process. In preeclampsia, uric acid level has been known to be increased and to correlate with maternal and fetal morbidity, but always has been assumed to be a reflection of disease rather than a cause and it has antioxidant properties that serve to protect from oxidative stress, but it also appears to contribute directly to endothelial dysfunction by its proinflammatory effects, as well as to hypertension during preeclampsia.

Conclusion

Serum uric acid levels were significantly higher in preeclampsia could be a useful indicator of the maternal and fetal complication in preeclampsia patients.

References

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