1. In the study population it was found that primigravidas are more prone to preeclampsia as compared to multigravidas. It was also found that this disease is more common in housewives, illiterate and lower class women.

2. The gestational age was found to be lower in preeclamptic pregnant women and it further decreased with the severity of the disease.

3. **Blood pressure** is an indicator for the severity of preeclampsia. An increase in blood pressure is one of the essential criteria in the diagnosis of preeclampsia. We therefore conducted an estimation of maternal levels of BP to predict maternal and fetal complications in preeclampsia. With the recent stress on outpatient management of women with mild preeclampsia, there is a need to identify the BP threshold above which there is increased likelihood of significant maternal and fetal complications that will enable us to identify the appropriate group of patients that need early intervention. Further reduce dietary salt intake can help in controlling BP. Systolic and diastolic blood pressure showed highly significant positive correlation with uric acid, ALP and LDH. Whereas systolic blood pressure showed highly significant positive correlation with hs-CRP. It again signifies that elevation of these biochemical parameters along with an increase in BP takes place as the disease advances.

4. Coagulation parameters (APTT and PT) are the most important markers to detect preeclampsia and suggest how much the disease could be complicated. APTT and PT markers are only helpful when the placental abruption occurs or there is an abnormal elevation of liver function tests. Thus they should be estimated only if these complications are observed thus decreasing hospital charges without compromising patient safety.
5. This study has shown a novel increase in **Fibrinogen** in pregnant women with preeclampsia as compared to healthy normotensive non-pregnant women and healthy normotensive pregnant women. High levels of fibrinogen were associated with severe preeclampsia as compared to mild preeclampsia. Like CRP, Fibrinogen is a clinically useful marker in patients with preeclampsia. An increase in plasma fibrinogen explains that preeclampsia is an exaggerated inflammatory disease as well as a cause of endothelial damage and may contribute to the hypercoagulability.

6. Also the elevated **FDP** indicates the increased intravascular coagulation in preeclampsia and increase in fibrinolytic activity. These are thus the complementary predictors for the development of preeclampsia and should be detected in the high-risk pregnant women.

7. **AT III** is the main predictor to predict and monitor the severity of the condition. Low level of plasma AT III is indicative of its consumption due to generalized fibrin deposition in preeclampsia. These findings suggest that there is an excessive hypercoagulable state in preeclampsia and is involved in pathogenesis of the condition. To conclude, our findings indicate that there is a significant reduction in AT III levels in preeclampsia and that this reduction is proportional to the severity of preeclampsia. The determination of AT III early in pregnancy should be carried out so that changes in its level later on could be detected. AT III showed highly significant positive correlation with platelets and highly negative correlation with ALT, AST, ALP and uric acid. This suggests that as the disease progresses the concomitant changes in the parameters also occurs.

8. We found evidences of inflammation in preeclampsia. Our study concluded that the levels of **hs-CRP** were raised in healthy normotensive pregnant women as compared with healthy normotensive non-pregnant women. On comparing with preeclamptic pregnant women, the levels were decreased in both the control groups. Further the level of hs-CRP in severe preeclamptic pregnant women was elevated as compared to mild preeclamptic pregnant women. The elevated levels of hs-CRP and ESR, one of
the important inflammatory markers and an acute phase reactants indicate that preeclamptic pregnancy is an exaggerated generalized intravascular inflammatory response syndrome. Significantly a higher value of hs-CRP in preeclampsia suggests that inflammation is more pronounced in preeclampsia than normal pregnancy. Our findings suggest that increased hs-CRP levels may reflect endothelial cell dysfunction in preeclampsia and may be a potential marker of risk. The elevated levels of hs-CRP may be useful in prediction and diagnoses of the severity of preeclampsia and might reduce systemic complications and maternal deaths due to preeclampsia. The clinical validity of the monitoring of hs-CRP needs to be established in further longitudinal studies. hs-CRP showed highly significant positive correlation with ALT, AST, ALP, uric acid and UACR. This concludes that the elevation in these parameters occurs as the disease advances.

9. The lower levels of Calcium and Magnesium in preeclampsia compared to healthy normotensive non-pregnant women and healthy normotensive pregnant women support the hypothesis on the role of calcium and magnesium deficiency in preeclampsia pathophysiology and their association with hypertension and suggest the usefulness of their assessment in the early diagnosis of the disorder. So we can hypothesize that intake of calcium and magnesium supplementation in pregnancy can decrease the risk of developing preeclampsia. From our study, though calcium and magnesium deficiencies cannot be pinpointed as the sole factors for the etiology of PIH, their relationship with PIH cannot be denied. But further studies are needed to prove this hypothesis. If proven it will really be helpful to lower the incidence of this disease and early detection of these parameters is going to aid in better management of preeclampsia. Finally these findings support the hypothesis that hypocalcaemia and hypomagnesaemia are possible etiologies of preeclampsia.

10. It was found that LDH was elevated in preeclamptic pregnant women as compared to healthy normotensive non-pregnant women and healthy normotensive pregnant women. However, the levels of LDH were raised in severe preeclamptic pregnant
women as compared to mild preeclamptic pregnant women. **Thus it was concluded that LDH may be increased due to endothelial vascular damage and dysfunction which is the main cause in the occurrence of preeclampsia.** Higher level of serum LDH is a very useful biochemical marker to identify the occurrence of preeclampsia and correlates well with the severity of disease. Progressive increase in its level should be considered as a signal for prompt intervention to improve pregnancy outcome. **Identification of high-risk patients with elevated levels of LDH, their close monitoring, and prompt, correct management may prevent these complications with a subsequent decrease in maternal and fetal morbidity and mortality.**

11. Liver function tests are routinely performed in preeclamptic pregnant women as part of a battery of investigations to assess severity at admission and later to guide appropriate management. As a conclusion preeclampsia is a multisystem disorder, characterized by vascular endothelial dysfunction. In our study the higher levels of ALT/ AST/ ALP/ GGT and lower levels of **Total protein & Albumin** in preeclamptic pregnancies are very useful markers to identify the occurrence of the complications of preeclampsia in earlier in pregnancy which may reduces the risk of occurrence of disease. Elevated levels of **GGT** in preeclampsia suggest that endothelial vascular damage occurs which is one of the main causes of pathogenesis of preeclampsia. **Regular estimation of liver function is advisable for pregnancy diagnosed with preeclampsia in order to detect and prevent the morbidity and mortality in mother as well as in the fetus.**

12. The renal function tests (Urea, BUN, Creatinine and Uric Acid) are good parameters to monitor preeclampsia. The serum levels of renal parameters gradually increase as the disease severity increases. **Uric acid** is one of the strong indicators of the disease and correlates with its severity. Hyperuricemia may contribute to vascular damage in preeclampsia. Thus it can be used as **useful and inexpensive marker of predicting preeclampsia.** Assessment of uric acid during pregnancy may be
important for getting a favorable perinatal outcome and to predict maternal complications. Our study suggests that the higher levels of all the renal parameters in preeclamptic pregnancies are very helpful to identify the complications associated with the disease in the early stage of pregnancy and further may reduce the risk of disease in future.

13. **UACR** is an early indicator and one of the most important diagnostic criteria of preeclampsia. It is a reasonable “rule-out” test for detecting proteinuria in hypertensive pregnancies. Measurement of proteinuria is a good predictor of maternal complications in women with preeclampsia. It may therefore serve as a valuable quantitative and objective measurement for monitoring therapy or control of preeclampsia. Earlier distinction between preeclampsia and other forms of hypertension may allow for earlier diagnosis and treatment of preeclampsia with subsequent decrease in morbidity and a decrease in resource utilization. All women with persistent proteinuria, even in the absence of hypertension, should be referred for further investigation. Shortening the period for the diagnosis of preeclampsia would be valuable for management purposes, as well as for decreasing hospital cost and patient inconvenience.

14. A simple battery of hematological tests (**WBC/ RBC/ Hemoglobin/ Hematocrit/ Platelets**) are accurate and cost effective and can be used as a rapid procedure of assessment of severity of preeclampsia cases for their management even in rural hospitals for the early diagnosis of preeclampsia and prediction of its severity. The findings from our study suggest that increased levels of **WBC/leukocytes** may represent an inflammatory process in preeclampsia. Elevated levels of **RBC** in our study in preeclamptic pregnant women as compared to the controls reflects placental hypoxic conditions which may be due to abnormal remodeling of placental spiral arteries. Serial measurement of **hemoglobin and hematocrit** are used to monitor pregnancy at high risk of utero-placental insufficiency and is suggestive of hypovolaemia and hemoconcentration condition in preeclampsia. The reduced
**Platelet count** in preeclamptic women suggests that increased platelet consumption is an early feature of the disorder and that there is an excessive hypercoagulable state in preeclampsia. Estimation of platelet count seems to be useful in different pathological situations in pregnancy to predict and monitor the severity of this condition. A decrease in platelet during pregnancy may be a predictive marker for the termination of pregnancy and an excessive hypercoagulable state in patients with severe preeclampsia may be associated with the termination of pregnancy, especially when there is an aggravation of maternal factors. Even in patients with severe preeclampsia, vaginal delivery can be successful when the hypercoagulable state is less severe. Thus to conclude, platelets are useful bedside predictive marker in order to decide the optimal timing for the termination of pregnancy in patients with severe preeclampsia.

Finally the study concludes that the risk of developing preeclampsia and its associated maternal morbidity and mortality may be linked to low socio-economic status, low educational status, primigravidas and younger age of gravidas. **Women with previous preeclampsia should be offered counseling, if possible preconceptually.** Hence the early diagnosis using various coagulation, biochemical and hematological parameters is useful for reducing maternal complications. Also a proper use of these parameters helps in decreasing the MMR and financial burden on the patient and also on the healthcare system.