DERANGED SERUM LIPID LEVELS IN WOMEN

WITH PREECLAMPSIA.

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ABSTRACT;

Background; Preeclampsia (PE), as a risky pregnancy, is a systemic disease characterized by hypertension, proteinuria and edema, which are thought to be the result of diffuse endothelial activation and dysfunction. About 5% of all pregnant women have PE during the second half of gestation that can cause maternal death throughout the world and is accompanied by substantial perinatal morbidity and mortality. **Objective;** To determine the frequency of dyslipidemia in women with preeclampsia at a tertiary care hospital.   **Material and Methods;** A total of 135 women with preeclampsia (Both primigravida and multigravida) aged 20 – 40 years were included in our study. Patients with twin pregnancy, taking lipid lowering therapy were excluded from our study. Detailed history and physical examination was conducted. Five ml venous blood sample was drawn and sent to central pathology laboratory of Nishtar Hospital, Multan for serum lipid profile estimation. Data was analyzed by using SPSS Version 20. **Results;** Mean gestational age of our study cases was 33.24 ± 2.77 weeks. Mean age of our study cases was 29.61 ± 3.54 years. Family history was positive in 41 (30.4%) of our study cases. Diabetes was present in 25 (18.5 %) of our study cases. Mean parity was 2.59 ± 1.72 and 77 (57.0%) had parity up to 3. Mean body mass index of our study cases was 25.85 ± 2.54 kg/m^2 and obesity was present in 31 (23.0 %) of our study cases. Of these 135 study cases, 104 (77.0 %) were illiterate while 31 (23.0%) were literate. Of these 135 study cases, dyslipidemia was present in 73 (54.1%). Mean Serum Cholesterol level was 223.45 ± 47.21 mg/dl and it was deranged in 71 (52.59 %), mean serum LDL level was 147.15 ± 31.25 mg/dl and it was deranged in 72 (53.33%), mean serum triglyceride level was 154.21 ± 15.29 mg/dl and it was deranged in 70 (51.85%) of our study cases and mean HDL level was 52.42 ± 8.53 mg/dl while it was deranged in 14 (10.37%). **Conclusion;** Very high frequency of dyslipidemia was noted in our study in pre-eclamptic women. Dyslipidemia was significantly associated with gestational age, parity and diabetes. All the preeclamptic women should be screened for serum lipid levels and be managed accordingly to avoid future fetomaternal adverse outcomes.

Keywords; Preeclampsia, dyslipidemia, Frequency.

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INTRODUCTION;

Pre-eclampsia is common medical complication of pregnancy. It is a multisystem disorder characterized by systolic blood pressure above 140 mmHg and/or diastolic pressure >90mmHg measured at least two times with 4 hours interval and proteinuria   ≥300mg/day, after 20 weeks of gestation [1]. It involves 2-8% of pregnancies and it is leading cause of maternal and neonatal mortality and morbidity[2, 3]. In addition, women with a history of preeclampsia are at an increased risk for cardiovascular disease later in life. Risk factors for development of preeclamsia include extremes of maternal age (>35 years or <15 years), obesity, diabetes mellitus, history of renal disease or chronic hypertension, multiple gestation, and African American race[4, 5]. However various factors are

implicated in the pathogenesis of preeclampsia including genetic, immune, vascular and oxidative stress, yet its etiology remains unclear, and little is still known about the pathogenesis of preeclampsia, making its prevention an ongoing challenge [5].

Endothelial dysfunction is the most acceptable theory for etiology of preeclampsia. In this disorder due to deposition of fibrin and platelet and accumulation of lipid-laden microphages within vascular bed, placental perfusion is reduced. These findings have lead to the hypothesis that disorders of lipid metabolism might be a major cause of endothelial dysfunction [6]. Women who develop preeclampsia, experience more dramatic lipid changes compared with normotensive women [7]. Sharami et al [7] reported deranged serum cholesterol levels in 58.5 %, deranged LDL in 65.9 %, deranged HDL levels in 9.5 % and deranged triglyceride levels in 58.5 % women having preeclampsia.

Worldwide, preeclampsia and related-conditions are among the leading causes of maternal mortality particularly in developing countries as compared to developed nations [8-14]. So This study was done to ascertain derangement in serum lipid levels in these ladies with PE.

MATERIAL AND METHODS

A total of 135 women with preeclampsia (Both primigravida and multigravida) aged 20 – 40 years were included in our study. Patients with twin pregnancy, taking lipid lowering therapy were excluded from our study. Detailed history and physical examination was conducted. Five ml venous blood sample was drawn and sent to central pathology laboratory of Nishtar Hospital, Multan for serum lipid profile estimation. Data was analyzed by using SPSS Version 20. Mean and standard deviation was calculated for the numerical data like age of patients, BMI and serum lipid profile. Frequencies and percentages were tabulated for qualitative variables like dyslipidemia, diabetes, obesity, residential status, educational status, parity, family history of dyslipidemia and age groups.

RESULTS

Our study comprised of a total of 135 patients meeting inclusion criteria of our study. Mean gestational age of our study cases was 33.24 ± 2.77 weeks (with minimum gestational age was 21 weeks while maximum gestational age was 36 weeks). Our study results have indicated that majority of our patients i.e. 88 (65.2%) had gestational age more than 30 weeks. Mean age of our study cases was 29.61 ± 3.54 years (with minimum age of our study cases was 22 years while maximum age was 37 years). Our study results have indicated that majority of our study cases i.e. 84 (62.2 %) were aged up to 30 years. Of these 135 study cases, 57 (42.2 %) belonged to rural areas and 78 (57.8 %) belonged to urban areas. Family history was positive in 41 (30.4%) of our study cases. Diabetes was present in 25 (18.5 %) of our study cases. Mean parity was 2.59 ± 1.72 and 77 (57.0%) had parity up to 3. Mean body mass index of our study cases was 25.85 ± 2.54 kg/m^2 and obesity was present in 31 (23.0 %) of our study cases. Of these 135 study cases, 104 (77.0 %) were illiterate while 31 (23.0%) were literate. Of these 135 study cases, dyslipidemia was present in 73 (54.1%). Mean Serum Cholesterol level was 223.45 ± 47.21 mg/dl and it was deranged in 71 (52.59 %), mean serum LDL level was 147.15 ± 31.25 mg/dl and it was deranged in 72 (53.33%), mean serum triglyceride level was 154.21 ± 15.29 mg/dl and it was deranged in 70 (51.85%) of our study cases and mean HDL level was 52.42 ± 8.53 mg/dl while it was deranged in 14 (10.37%).

DISCUSSION

Pre-eclampsia is one of the most common causes of maternal and fetal morbidity and mortality. It is a systemic disease that affects about 5 – 7 % of all pregnancies and is the most common, yet least understood disorder of pregnancy [8].

Mean age of our study cases was 29.61 ± 3.54 years (with minimum age of our study cases was 22 years while maximum age was 37 years). Our study results have indicated that majority of our study cases i.e. 84 (62.2 %) were aged up to 30 years. A study conducted in India by Kanagal et al [8] reported 27.45 ± 4.33 years mean age of pre-eclamptic women which is close our study results. Vafaei et al [15] reported similar results. A study conducted by Ugwuja et al [16] from Nigeria reported 29.5 ± 3.70 years which is similar to that of our study results. Ephraim et al [17] reproted 32.28 ± 8.58 years mean age in women with preeclampsia which is similar to that of our study results. Sirajwala et al [18] reported 26.03 ± 2.73 years mean age which is close to our study results.

Our study comprised of a total of 135 patients meeting inclusion criteria of our study. Mean gestational age of our study cases was 33.24 ± 2.77 weeks (with minimum gestational age was 21 weeks while maximum gestational age was 36 weeks). Our study results have indicated that majority of our patients i.e. 88 (65.2%) had gestational age more than 30 weeks. A study conducted by Kanagal et al [8] in India reported 36.9 ± 0.9 weeks mean gestational age in women with preeclampsia. These findings of Kanagal et al [8] are similar to that of our study results. A study conducted by Ugwuja et al [16] from Nigeria reported 21.4 ± 3.22 weeks mean gestational age which is quite less than that being reported in our study. Ephraim et al [17] reported 30.72 ± 2.84 weeks mean gestational age which is in compliance with our study results. Sirajwala et al [18] reported 34.48 ± 3.52 weeks mean gestational age which is similar to that of our study results.

Of these 135 study cases, 57 (42.2 %) belonged to rural areas and 78 (57.8 %) belonged to urban areas. Family history was positive in 41 (30.4%) of our study cases. Diabetes was present in 25 (18.5 %) of our study cases. Mean parity was 2.59 ± 1.72 and 77 (57.0%) had parity up to 3. Ephraim et al [17] reported similar results.

Mean body mass index of our study cases was 25.85 ± 2.54 kg/m^2 and obesity was present in 31 (23.0 %) of our study cases. A study conducted by Kanagal et al from India [8] reported 27.07 ± 3.7 kg/m^2 which is similar to our findings. A study conducted by Ugwuja et al [17] from Nigeria reported mean BMI 20.3 ± 3.90 kg/m^2 which is less than that of our study findings. Ephraim et al [17] reported 29.04 ± 7.61 kg/m^2 which is higher than that of our study results.

Of these 135 study cases, dyslipidemia was present in 73 (54.1%). Mean Serum Cholesterol level was 223.45 ± 47.21 mg/dl and it was deranged in 71 (52.59 %), mean serum LDL level was 147.15 ± 31.25 mg/dl and it was deranged in 72 (53.33%), mean serum triglyceride level was 154.21 ± 15.29 mg/dl and it was deranged in 70 (51.85%) of our study cases and mean HDL level was 52.42 ± 8.53 mg/dl while it was deranged in 14 (10.37%). Sharami et al [7] reported deranged serum cholesterol levels in 58.5 %, deranged LDL in 65.9 %, deranged HDL levels in 9.5 % and deranged triglyceride levels in 58.5 % women having preeclampsia. These findings are close to our study results.

CONCLUSION

Very high frequency of dyslipidemia was noted in our study in pre-eclamptic women. Dyslipidemia was significantly associated with gestational age, parity and diabetes. All the preeclamptic women should be screened for serum lipid levels and be managed accordingly to avoid future fetomaternal adverse outcomes.

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