Values of First and Early Third Trimesters Serum Lipid Profile in the Prediction of Preeclampsia: A Cohort Study GMJ

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In the current prospective cohort study measuring the lipid profiles before the occurrence of PE in all participants, the causal relationship between the PE and lipid profile was demonstrated; however, they could not determine the severity of the diseases. In agreement with the current results, some cross-sectional studies measuring lipid profiles in pregnant women suffering from PE showed greater lipid profile levels in the PE group in comparison to the normotensive group [27, 28]. Another study presented the change in TG, TC, LDL, and LDL/HDL ratio levels in the early second trimester with similar results to our study [29].

In another study, lipid profile levels, as well as the beta-hCG level of 184 pregnant women, were investigated at 14–18 weeks and 24–28 weeks. TC, TG, LDL, and beta-hCG were higher in the HPDs group than normotensive group regarding both GA periods [24], although some studies resulted in no correlation among the HDL level with HPDs, PE, and severe PE in the second trimester [15, 21], some other studies showed that lower HDL level increased the risk of HPDs [20, 30].

According to the current study, the most valid cut-off points regarding HPDs are LDL, TC, and TG in the early third trimester; TC and LDL in the first trimester. In Jin *et al*. study, the validity of TG was lower than the current study (AUC=0.736), and the sensitivity and specificity were reported as 85% and 64.8%, respectively [20].

The key points of the current study were the generalizability of the results due to the large sample size and the prospective design of the study. Also, lipid profiles among normotensive and HPDs subgroups, including gestational HTN and PE, were comprehensively investigated in the first and early third trimesters. Furthermore, the prevalence of HPDs and PE were estimated, and a variety of valid cut-off points were provided in the first and early third trimesters of a normal population in the south of Iran. The most important limitation of the current study was the absence of genetic and epigenetic factors associated with HPDs.

Conclusion

Maternal lipid profiles are considered valid predictors of PE in the first and early third trimesters of pregnancy. These tests are available and inexpensive; also, by using the cut-off points, we could determine the high-risk pregnant women before developing PE and, consequently, other adverse pregnancy outcomes. Future studies, especially clinical trials, are recommended to investigate the efficacy of lipid-lowering drugs on PE patients.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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