

First trimester PAPP-A and β -hCG in the prediction of adverse pregnancy outcome: A Tunisian study

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Objective

To compare pregnancy-associated plasma protein a (PAPP-A) and the β -human chorionic gonadotropin (β -hcg) measured in maternal plasma at the first trimester screening in women who developed pre-eclampsia (PE), intrauterine fetal growth restriction (IUGR), preterm birth (PB) with normal pregnancies (spontaneous pregnancies without aneuploidy).

Methods

In this retrospective study during 2011 to 2013, we measured maternal serum PAPP-A and β -hcg at 11-13 weeks in 505 women with euploid singleton pregnancies. Pregnancy outcomes were assessed by the review of medical records and postal questionnaires. Delivery details were collected, including livebirth, neonatal birthweight and gestational age at delivery. We compared the mean levels of serum PAPP-A and β -hcg in cases with adverse outcomes and no adverse outcome in the same period.

Results

Among 505 cases, we found 2 groups. The case group included 67 cases with adverse pregnancy outcomes such as preeclampsia, intrauterine fetal growth restriction and preterm birth and the reference group included 438 normal pregnancies. The median of Mom PAPP-A are significantly lower in women with PE (n=60), PB (n=23) and IUGR (n=13) with values of 82, 81, 80 Mom respectively, while in the reference group was 1, 9 Mom.

Conclusion

PAPP-A was significantly lower in pregnancies that subsequently developed adverse pregnancy outcome. No significant difference was found for β -hcg in our study and further research is recommended to identify the best protocol for pregnancy management and surveillance in women identified as high risk for adverse pregnancy outcome based on abnormal maternal serum levels.