



Significance of pregnancy-associated plasma protein A (PAPP-A) concentration determination in the assessment of final outcome of pregnancy

Značaj određivanja koncentracije plazma proteina trudnoće A (PAPP-A) u proceni konačnog ishoda trudnoće

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Abstract

Background/Aim. Pregnancy-associated plasma protein A (PAPP-A) is high molecular matrix metalloproteinase originally isolated in the serum of pregnant women. The aim of this study was to analyze the values of concentration of PAPP-A in assessment of progress and outcome of pregnancy in pregnant women diagnosed with threatening preterm delivery, preeclampsia and fetal growth restriction in relation to physiological pregnancy of the same gestational age. **Methods.** The study included 60 pregnant women that were divided into three groups according to gestational age and the diagnosis of imminent premature birth upon reception, preeclampsia and fetal growth restriction as follows: the group I from 28 to 32 weeks of gestation, a total of 25 pregnant women, the group II from 33 to 36 weeks of gestation, a total of 23 pregnant women, and the group III from 37 to 41 weeks of gestation, a total of 12 pregnant women. The control group consisted of 60 pregnant women without complications of pregnancy that were identically divided into three groups according to gestational age as in the sample. We performed quantitative determination of PAPP-A from the venous blood of patients by using commercial tests of the company Diagnostics Product Corporation (DPC), Los Angeles, California, USA.

Results. There was a statistically significant difference in PAPP-A values in the examined groups in all gestational ages ($p < 0.01$). The value of the PAPP-A concentration in different gestational ages with equal statistical significance indicated the possibility of complications, which was examined during pregnancy in relation to the control group of pregnant women with physiological pregnancies. This study confirmed that there was a statistically significant difference in fetal body weight at birth ($p < 0.05$), Apgar score in 5 min after birth ($p < 0.05$), and gestational age at birth ($p < 0.05$), as parameters of the outcome of pregnancy course, between the examined groups of pregnant women in relation to the value of PAPP-A concentration. The age of pregnant women was not statistically different in the examined groups ($p > 0.05$). **Conclusion.** Differences in PAPP-A concentration should point out to the obstetrician the need for more intensive *antepartum* fetal surveillance in order to increase the chances of favorable perinatal outcome, regardless gestational age.

Key words:

pregnancy outcome; premature birth; pregnancy-associated plasma protein A; pre-eclampsia; fetal growth retardation; apgar score; gestational age.

Apstrakt

Uvod/Cilj. Plazma protein A povezan sa trudnoćom *pregnancy-associated plasma protein A* (PAPP-A) je visokomolekularna matriks metaloproteinaza koja je prvobitno izolovana iz seruma trudnih žena. Cilj istraživanja bio je analiza vrednosti koncentracije PAPP-A u proceni toka i ishoda trudnoće kod trudnica sa dijagnozom pretećeg prevremenog porođaja, preeklampsije i zastoja u rastu ploda u odnosu na fiziološke trudnoće iste gestacijske starosti. **Metode.** U studiju je bilo uključeno 60 trudnica koje su bile podeljene u tri

grupe prema gestacijskoj starosti i prijemnoj dijagnozi pretećeg prevremenog porođaja, preeklampsije i zastoja u rastu ploda: grupa I od 28 do 32 nedelje gestacije imala je ukupno 25 trudnica, grupa II od 33 do 36 nedelja gestacije, ukupno 23 trudnice, i grupa III od 37 do 41 nedelje gestacije, ukupno 12 trudnica. Kontrolnu grupu činilo je 60 trudnica bez ispitivanih komplikacija podeljenih prema gestacijskoj starosti identično kao i u eksperimentalnoj grupi. Kvantitativno određivanje PAPP-A vršeno je iz venske krvi bolesnice primenom komercijalnih testova firme Diagnostics Product Corporation (DPC), Los Angeles, Kalifornija, USA. **Re-**

