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LEVELS OF PAPP-A IN THE 1ST TRIMESTER OF PREGNANCY IN RUSSIAN POPULATION WITH TWO-SITE MONOCLONAL ELISA

Background. Pregnancy-associated plasma protein-A (PAPPA) is an established biochemical marker that is using in the prenatal screening for chromosomal abnormalities in the first trimester of pregnancy.

Methods. Serum concentration of PAPP-A was measured using a monoclonal two-site ELISA (DS-EIA-PAPP-A).

Results. Maternal serum PAPP-A values from 3579 singleton white pregnant women with no Down in pregnancy outcome and 16 women with Down syndrome fetuses (Central Russia, mean age 27 years, range from 16 to 43 years) have been measured. Results of specimens testing were used to calculate median (normal range, 5th and 95th percentile) for each gestational week: 8 week of gestation – median 0.60 mIU/ml (from 0.19 to 1.82 mIU/m); 9 week of gestation – median 0.88 mIU/ml (from 0.3 to 2.03 mIU/m); 10 week of gestation – median 1.31 mIU/ml (from 0.28 to 2.84 mIU/m); 11 week of gestation – median 2.02 mIU/ml (from 0.25 to 4.65 mIU/m); 12 week of gestation – median 3.39 mIU/ml (from 0.22 to 6.46 mIU/m); 13 week of gestation – median 4.27 mIU/ml (from 1.49 to 9.11 mIU/m). A statistically significant correlation between PAPP-A medians and maternal body weight was found ($P < 0,05$). Medians were ranged according forth body weights (45 kg, 60 kg, 75 kg, 90 kg) for each gestational week: 8 week of gestation – 0.73; 0.64; 0.51; 0.44 mIU/ml respectively, 9 week of gestation – 1.26; 0.97; 0.84; 0.73 mIU/ml, 10 week of gestation – 1.52; 1.34; 1.25; 1.13 mIU/ml, 11 week of gestation – 2.32; 2.13; 1.84; 1.48 mIU/ml, 12 week of gestation – 3.92; 3.35; 3.19; 2.41 mIU/ml, 13 week of gestation – 5.57; 4.86; 3.68; 3.32 mIU/ml. A downward trend in the medians PAPP-A with an increase age of pregnant women ($P > 0,05$) was observed. For risk calculation in prenatal screening PAPP-A concentrations are indicated as MOM (multiple of medians). The median of MOMs for women with no Down in pregnancy for our population was observed as 1.07 and for Down syndrome pregnancies the medians of MOMs for PAPP-A are increasing during the first trimester: 11 week of gestation – 0.45; 12 week of gestation – 0.47; 13 week of gestation – 0.5.

Conclusions. We defined normal limits of serum PAPP-A in Central Russia population with test DS-EIA-PAPP-A. It is necessary for estimation of abnormal pregnancy risk.

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