

Pregnancy outcome among women with low first trimester PAPP-A levels

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Objective

To assess the outcome of pregnancies with PAPP-A levels at or below ≤ 0.5 multiples of the median (MoM).

Methods

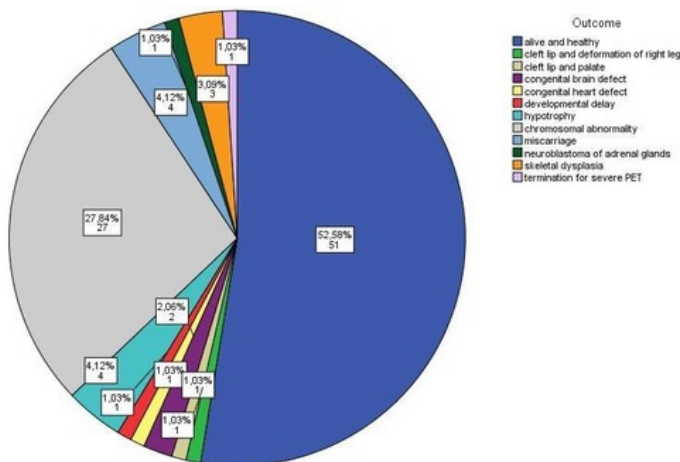
We performed a retrospective data analysis of all women who attended the first trimester screening program in our department between 2004 and 2013 and selected those with PAPP-A ≤ 0.5 MoM. In this group we ascertained the outcome of pregnancy.

Results

We screened 22,020 pregnancies in total. Out of these 97 (0.44%) had PAPP-A levels ≤ 0.5 MoM. 27 of these pregnancies had a negative screening result. Of these 25 resulted in a birth of a healthy child, 1 pregnancy was terminated for a cleft lip and a deformation of the right leg and 1 pregnancy resulted in late miscarriage due to preeclampsia. 16 fetuses were male and 11 female. No invasive testing was performed in this group. 70 pregnancies had a positive screening result. In 65 fetuses chromosomal testing was performed (45 CVS, 17 amniocentesis cases and 3 fetal fibroblasts), 5 women refused an invasive procedure. 27 of the karyotypes were abnormal, 38 were normal. All the pregnancies with an abnormal karyotype were terminated according to the wishes of the women. There were 11 spontaneous miscarriages. 32 cases were born alive and only 26 were alive and healthy. 22 were male, 12 female and in 36 we could not ascertain the gender. In total in our cohort there were 4 cases of intrauterine growth retardation, 3 cases of skeletal dysplasia, 1 case of cleft lip and palate, 1 of hydrocephaly, 1 of heart defect, 1 of cerebellum agenesis, 1 of neuroblastoma of adrenal gland, 1 of developmental delay. 5 patients refused an invasive procedure, among those there were 3 cases of spontaneous abortion, (1 with bilateral cleft lip and palate), 1 fetus born alive and healthy and 1 fetus born with intrauterine growth retardation. According to the pregnancy outcome the cohort can be divided into liveborns (57/97), terminations of pregnancy (28/97) and miscarriages (12/97). Out of the 57 liveborns 51 were healthy. 19 of them had PAPP-A levels at or below ≤ 0.2 multiples of the median (MoM). All the remaining 6 children with health problems had PAPP-A levels at or below ≤ 0.2 multiples of the median (MoM). Four of them had intrauterine growth retardation, 1 had developmental delay and 1 had a neuroblastoma of adrenal gland. Out of the 28 terminations of pregnancies there were 22 fetuses with a chromosomal abnormality, 2 with a congenital brain defect, 3 with skeletal dysplasia and 1 pregnancy was terminated for early severe preeclampsia. Out of the 12 cases of miscarriage there were 5 fetuses with a chromosomal abnormality, 1 with a congenital heart defect, 1 with bilateral cleft lip and palate, 1 with a cleft lip and palate with deformation of right leg and in 4 the reason was not known.

Conclusion

The results show that women with low serum PAPP-A are at increased risk of adverse pregnancy outcome. It was concluded that serum PAPP-A is a marker for poor pregnancy outcome and women with low serum PAPP-A levels would benefit from increased monitoring of their pregnancies. In 20% of pregnancies with a good outcome the levels of PAPP-A were at or below 0.2 MoM.



Chromosomes

- 46,XX
- 46,XY
- 5p chromosome deletion syndrome
- Mosaicism 92,XXXYY46,XY
- Triploidy
- Trisomy 13
- Trisomy 18
- Trisomy 21

