Abstract

Introduction: Spontaneous abortion (SA) is the most common complication in pregnancy. The aim of the study was to investigate the causality of selected genetic factors - Apolipoprotein E (Apo E) gene polymorphisms, factor V Leiden (FVL), Prothrombin (PT G20210A) and nongenetics factors - Thyroid stimulating hormone (TSH), free thyroxine (fT4), antibodies against thyroid peroxidase (a-TPO) in the role of early SA.

Materials and methods: For genotyping of APO E polymorphism was used PCR-RFLP. The detection of mutations in genes FV and FII was performed using by HRM. Laboratory markers of thyroid (TSH, a-TPO and fT4) were determined by an automated analyzer using chemiluminescent immunoassay.

Results: APOE genotypes of investigated group of 410 samples abortioned embryonic/ fetal tissues were not significantly different from 2 606 adult controls (P = 0.653). In observed infertile group of 75 women with isolated SA was FVL detected in heterozygous constitution with a prevalence of 12 %. The prevalence of FVL in a group of women with early insulated SA was significantly higher than 76 controls (12 % vs. 2.6 %, P = 0.031). The difference of PTG20210A prevalence between women with isolated SA and controls was not significant (4 % vs. 5.3 %, P = 1). The prevalence of elevated TSH levels (higher than 2.5 mIU/l) was significantly higher in group of 188 infertile women compared with the 172 controls regardless of the number of SA (P = 0.005). Prevalence of elevated levels of a-TPO (higher than 143 IU/ml) was significantly higher in women with recurrent miscarriage and habitual in comparison with the group of women with isolated SA (15 % vs. 5 % P = 0.003). The value of a-TPO levels above 143 IU/ml is 116x higher risk of simultaneous presence of sonographic signs of middle (TUS 3) and / or serious (TUS 4) thyroiditis than the presence of any (TUS 0) and / or borderline inflammatory changes of the thyroid (TUS 1) (OR = 116.2 [95 % CI: 14.2 - 947.4]).

Conclusion: APOE polymorphism cannot be described as a determining factor in the role of early SA. Heterozygous FVL are after previous elimination of basic etiological causes of early SA identified as a possible risk factor for insulated SA (P = 0.031). TSH values higher than 2.5 mIU/l can be considered as a risk factor for early SA (P = 0.005). Laboratory findings of a-TPO greater than 143 IU / ml can be identified as a risk factor for recurrent and /or habitual abortion during the first trimester (P = 0.003).

Keywords: spontaneous abortion, APOE, hereditary thrombophilia, thyroid dysfunction