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Platelet polymorphisms and venous thromboembolism in pregnancy and puerperium

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Statement of the Problem: Proof of the role of platelets in VTE was provided by two randomized, double-blind trials, WARIS and ASPIRE. Both recently showed a reduction in venous thrombosis recurrence by approximately 30% with the use of the antiplatelet drug, aspirin, compared to placebo.

Aim: The aim of our study (supported by grant RVO VFN 64165) was to parse the frequencies of selected polymorphisms in platelet genes associated with higher platelets activity in cohorts of patients with venous thromboembolisms.

Methods: Genetic testing of polymorphisms (SNP) GPVI (Ser219Pro, rs1613662), P2Y12 (haplotype H1/H2, rs2046934; 32C>T, rs 6785930), GPIIIa (Leu59Pro, rs5918), GPIa (807C>T, rs1126643), COX-1 (-842A>C, rs10306114) and PAR-1 (IVS+141G>A), were completed for 2630 persons with VTE and control group of 2637 healthy persons without history of VTE.

Results: The examination did not show any significant differences between the polymorphism frequencies in subjects with VTE in comparison to the results obtained in control group. But in the subgroup of women with VTE in pregnancy or in puerperium (n 161) was observed an increase of the risk allele T in GP Ia gene (807C>T, rs 1126643) with p = 0.049 (after Bonferoni correction) and odds =1,513. Between these patients with finding of the risk allele T was observed significance of the next mutation of PAR-1 gene (IVS + 1411G>A) with p = 0.016 and odds =2.256.

Conclusion: It is suggested that the observed platelet gene polymorphisms of GP Ia and PAR-1 play role in an increase of primary haemostasis activity in pregnancy as a cause of thrombophilia state, too.

Biography

Jan Kvasnicka aquired MD(1966) and PhD(1986) from Charles University at Prague, his appoint-ment to Professor in this University was in 2002. He is the chairman of Molecular Genetic Laboratory at Thrombosis Centre of General University Hospital in Prague. He has published more than 250 papers in reputed journals (51 with IF), his citation index WOS SCI is 809 and hi-index is 15.

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