

Could polycythemia vera be a vascular „risk factor” in woman?

Imelda Marton¹, **Éva Pósfai**¹, **Zsuzsanna László**², **Márta Széll**², **Zita Borbényi**¹

¹*2nd Department of Medicine and Cardiology Center, Albert Szent-Györgyi Clinical Center - University of Szeged, Korányi fasor 6., Szeged H-6720, Hungary evaposfay@gmail.com*

²*Institute of Medical Genetics, Albert Szent-Györgyi Clinical Center - University of Szeged, Somogyi B. u. 4 Szeged H-6720*

Background: The life expectancy of polycythemia vera (PV) patients is strongly affected by thrombotic events. Investigation of risk factors of thrombotic events separately in women should be prominently important, since changes in their lifetime conditions such as pregnancy or climacterium, and commonly prescribed oral contraceptives or oral hormone replacement therapies (HRT) could have an additional effect on the relatively frequent occurrence of vascular complications in these patients.

Aim: To evaluate the impact of major cardiovascular risk factors (hypertension, cigarette smoking, diabetes mellitus, obesity and hyperlipidemia) on thrombotic events in woman diagnosed with polycythemia vera.

Methods: Women with or without of thrombotic events were compared by a series of variables such as age, presence of JAK2 V617F mutation, measured platelet, red blood cell, haemoglobin and leukocyte counts at diagnosis, cardiovascular risk factors, and thrombotic events before and after diagnosis. Mann-Whitney tests were performed to explore overall effects of these variables. Multivariate binary logistic regression was also run to estimate the probability of thrombotic events.

Study participants: Fifty- eight women with median age 62 years; (range: 24–80 years) diagnosed with polycythemia vera between 1999 and 2011 at our Department, were enrolled to the study. Patients who used oral contraceptives or HRT were excluded from the study.

Results: JAK2 V617F-positivity was proven in 41 patients. Twenty-one thrombotic events were recorded in the prior history of PV patients, (before the clinical diagnosis of PV): myocardial infarction in 5 cases (8.6%), ischemic stroke or transient ischemic attack in 9 cases (15.5%), venous thrombotic events in 7 cases (12.1%). During the follow up period, 6 new thrombotic events were recorded: ischemic stroke or transient ischemic attack in 5 cases (8.6%), venous thrombotic event in 1 case (1.7%). Thirty-seven patients (63.8%) had high blood pressure. Eleven patients (19%) had hyperlipidaemia, 9 patients (15.5%) had diabetes mellitus, and 7 patients (12.1%) were cigarette smoker. Thirty-six women (62.1%) had normal weight (BMI 18,5-25), 22 (37.9%) woman were obes (BMI>25).

The univariate analysis of the individual cardiovascular risk factors, the presence of diabetes mellitus ($p=0.576$) or obesity ($p=0.664$) did not show association with an increased risk of thrombosis in our study. However high blood pressure ($p=0.053$), hyperlipidaemia ($p=0.042$), and cigarette smoking ($p=0.003$) are all associated with a significantly increased risk of thrombotic events. The association of cigarette smoking could be also confirmed using the multivariate binary logistic regression analysis ($p=0.046$)

Summary/conclusions: Based on our findings we concluded that polycythemia vera female patients, with cardiovascular risk factors (especially high blood pressure, hyperlipidemia, smoking) may have a higher risk for thrombotic events. In the future, in a prospective analysis we plan enlarge our study group for comparing the risk status of female PV patients who use or do not use oral contraceptives or HRT.

Keywords: JAK2 V617F, polycythemia vera, risk of thrombosis, woman

Acknowledgements: The authors would like to acknowledge Balázs Kotosz Phd. help in the statistical analysis of the data.