

Incidence of thrombosis in Korean patients with myeloproliferative neoplasms

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Background/Aims: Thrombosis is a long-recognized cause of morbidity and mortality in BCR/ABL negative myeloproliferative neoplasms (MPN) patients, but few data on epidemiology and thrombosis in are available from Korean population.

Methods: This was a retrospective multicenter study of 256 MPN patients diagnosed between year 2008 and 2019. The rates, sites, and risk factors of thrombosis in each subtype of MPN were analyzed.

Results: The patients were followed-up for median of 46 months. Overall, the most common diagnosis was essential thrombocythemia (ET) (42.2%), and thrombosis events before or at the diagnosis was observed in 19.9% (n=51) patients. As shown in Figure, stroke (13.3%, n=34) was the most common cause of thrombosis. The patients with leukocytosis (OR 4.10, 95% CI 1.85-9.07, $p<0.001$), history of thrombosis (OR 5.52, 95% CI 2.51-12.41, $p<0.001$), and two or more cardiovascular risks (OR 2.22, 95% CI 1.03-4.79, $p=0.043$) were more likely to experience thrombosis after the diagnosis. When polycythemia vera (PV) and ET patients were classified per risk stratification, thrombosis occurred in 26.3% of high-risk group, in contrast to 2.3% in low risk group. Specifically, in the high-risk group more than half of thrombosis occurred before the diagnosis, and the quarter within one month of diagnosis. When ET patients were analyzed by IPSET-Thrombosis score, thrombosis rate increased from 1.9% in low risk to 20.4% in high risk. In PV patients, the history of thrombosis (OR 9.18, 95% CI 1.64-51.35, $p=0.012$) and the leukocytosis over $15 \times 10^9/L$ (OR 15.70, 95% CI 2.82-87.24, $p=0.002$) were recognized as risk factors for thrombosis on multivariate analyses. For ET patients, higher IPSET risk score (OR 3.22, 95% CI 1.27-8.11, $p=0.013$) was associated with increased thrombosis events while JAK2 V617F (OR 0.164, 95% CI 0.04-0.73, $p=0.018$) showed inverse association.

Conclusions: Korean patients have similar frequency of thrombosis events compared to Western patients, underlying the importance of recognizing those at high risk and implementing individualized treatment.

