



The 65th ASH Annual Meeting Abstracts

POSTER ABSTRACTS

634.MYELOPROLIFERATIVE SYNDROMES: CLINICAL AND EPIDEMIOLOGICAL

Age-Adjusted Charlson Comorbidity Index Is a Significant Factor for Predicting Thrombosis Development and Survival in Polycythemia Vera

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Background: The worldwide-recognized prognostic role of age and previous thrombosis as part of standard risk score in polycythemia vera (PV) deserves some deeper insight. Aim of our study was to identify prediction factors for thrombosis development and overall survival (OS) in PV patients.

Methods: Study included 816 PV patients diagnosed according to WHO classification and treated between 2005-2022 at University center. The analysis included: demographic, clinical and laboratory parameters with neutrophil-to-lymphocyte ratio (NLR) and platelet-to-lymphocyte ratio (PLR), thrombosis data, age-adjusted Charlson comorbidity index (ACCI) and presence of cardiovascular (CV) risk factors (arterial hypertension, diabetes, smoking, hyperlipidaemia). JAK2 positivity had 97.8% of patients. During follow up 29.8% of patients died.

Results: Mean age was 62 years (range 18-87), 51.7% male and 61.3% older >60 years. According to standard risk score, 26.5% of patients belonged to low-risk group while 73.5% to high-risk group. According to ACCI: 11.8% were without comorbidities, mild grade had 34.4%, moderate 36% and severe 17.8% of patients. Distribution according to CV risk factor presence: without 25.6%, one 38.8%, two 27.5%, three 7.5%, four 0.6% of patients with highest incidence of arterial hypertension > smoking > diabetes > hyperlipidaemia.

Previous thrombosis was reported in 182 patients (22.3%) with 222 thrombosis (160 arterial, 62 venous). During follow up 111 patients (13.6%) had 120 thrombosis (82 arterial, 38 venous). Previous thrombosis ($p=0.029$), ACCI groups ($p<0.001$), presence of CV factor ≥ 1 ($p=0.001$) or secondary malignancy ($p<0.001$) predicted **venous thrombosis development**. In comparison, previous thrombosis ($p=0.03$), male gender ($p=0.006$) standard risk score ($p=0.001$), ACCI ($p<0.001$), CV factor ≥ 1 ($p<0.001$), NLR ≥ 5 ($p=0.008$) and PLR ≥ 500 ($p<0.001$), were predictors of **arterial thrombosis development**. In multivariate analysis, risk of venous thrombosis development was independently associated with only ACCI (HR 3.75; $p<0.001$) while arterial thrombosis with ACCI (HR 2.12; $p<0.01$) and PLR ≥ 500 (HR 1.886, $p=0.028$). Patients with thrombosis during the follow-up had significantly shorter survival ($p=0.048$).

Patients in low risk standard group had median survival of 221 months v.s high risk group patients with 119 months ($p<0.001$). Median survival of patients according ACCI groups: without comorbidities 233 months; mild grade 171 months; moderate grade 120 months and severe grade 84 months ($p<0.001$). Univariate analysis identified factors associated with shorter OS: age $\geq 65y$ ($p<0.001$), Le $\geq 15 \times 10^9/L$ ($p<0.001$), ANC $\geq 10 \times 10^9/L$ ($p<0.001$), Plt $\geq 1000 \times 10^9/L$ ($p=0.027$), presence of secondary malignancy ($p<0.001$), previous thrombosis ($p=0.03$), development of arterial ($p<0.001$) and venous ($p<0.001$) thrombosis during follow up. Of CV factors only presence of arterial hypertension showed negative survival effect ($p=0.003$). Multivariate Cox regression model revealed age $\geq 65y$ (HR=3.3; $p<0.001$), ACCI group (HR=1.7; $p<0.001$) and ANC $\geq 10 \times 10^9/L$ (HR=1.6; $p=0.001$) as most important survival predictors. Patients with ACCI score ≥ 4 significantly received hydroxyurea ($p<0.001$). The mean OS was 12.5 years while 5-years and 10-years OS was 81% and 62% respectively. The cause of death was as the follows: heart failure (37%), second malignancy (15.2%), thrombosis (14.8%), progression of disease (8.6%), COVID infection (4.2%) and unknown cause in 20.2% of patients.

Conclusion: Age-adjusted CCI was found to be the most reliable predictor of thrombosis development in PV. The application of ACCI allows better PV survival assessment by delineating ACCI moderate grade as intermediate risk survival group and improves identification of high-risk PV patients incorporating ACCI severe grade group with survival less than 7 years.

Disclosures Bogdanovic: *Takeda (local in Serbia):* Membership on an entity's Board of Directors or advisory committees; *AbbVie (local in Serbia):* Membership on an entity's Board of Directors or advisory committees; *AstraZeneca:* Speakers Bureau; *Novartis:* Membership on an entity's Board of Directors or advisory committees, Speakers Bureau; *Swedish Orphan Biovitrum:* Membership on an entity's Board of Directors or advisory committees.

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