RUXOLITINIB DOSE, TREATMENT-EMERGENT TRANSFUSION DEPENDENCE, AND SURVIVAL OUTCOMES IN MYELOFIBROSIS: REAL-WORLD EVIDENCE FROM TAIWAN

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INTRODUCTION

Myelofibrosis (MF) is a Philadelphia chromosome-negative myeloproliferative neoplasm that typically presents with anemia, cytokines production-related symptoms, and splenomegaly[1]. Ruxolitinib has been broadly utilized to treat patients with MF in the first-line setting. Following the phase 3 trials[2,3], several cohorts have shown the real-world efficacy of ruxolitinib in MF and identified prognostic factors[4,5]. However, data remains to be supplemented in Eastern populations. Also, key issues regarding the prognostic factors remain to be elucidated.

AIM

We aim to characterize treatment outcomes of ruxolitinib on patients with JAK inhibitor (JAKi)-naïve MF, primary or secondary (post essential thrombocythemia MF [post ET-MF] or post polycythemia vera MF [post PV-MF]), in the real-world setting, and to identify treatment related indicators of prognostic significance.

METHOD

Study cohort

JAKi-naïve MF patients receiving ruxolitinib and followed up at National Taiwan University Hospital were reviewed.

Definition and analysis

For time-to-event analyses, the index date was defined as the date of ruxolitinib initiation. DIPSS for primary MF and MYSEC-PM for secondary MF were applied for risk stratification[6,7]. A doubly robust, inverse probability treatment weighting (IPTW)-adjusted multivariate Cox proportional hazards model was constructed to clarify the prognostic relevance of platelet-count adjusted ruxolitinib dose.

CONCLUSIONS

Our cohort study highlights the survival benefit of appropriate ruxolitinib dose adjustment based on platelet count, a potentially modifiable factor, and identifies treatment-emergent transfusion dependence as a prognostic factor, thereby complementing existing real-world evidence.

RESULTS

- 201 MF patients treated with ruxolitinib that started between June 2008 and June 2025 were consecutively reviewed, with a median follow-up of 4.50 years (95% CI, 3.97-5.56).
- 151 (75.1%) patients had primary MF, 34 (16.9%) had post-ET MF, and 16 (8.0%) had post-PV MF.
- 151 (75.1%) patients had *JAK2* mutation, 29 (14.4%) had *CALR* mutation, 9 (4.5%) had *MPL* mutation, and 12 (6.0%) were triple negative.
- The median ruxolitinib starting dose was 10 mg/day (IQR, 5-30) for those with platelet count < 50 k/μL, 10 mg (5-40) for those with platelet count at 50-100 k/μL, 30 mg (5-40) for those with platelet count at 100-200 k/μL, and 20 mg (5-40) for those with platelet count >200 k/μL.

Figure 1. OS stratified by DIPSS for primary MF and MYSEC-PM for secondary MF

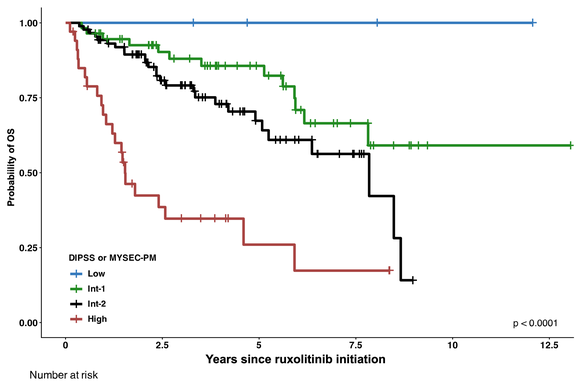

Figure 2. OS among baseline transfusion-independent MF patients, stratified by development of treatment-emergent RBC transfusion dependence

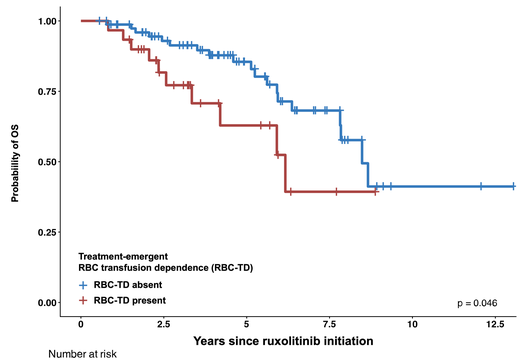

Table 1. Doubly robust, IPTW-adjusted multivariate Cox proportional hazards model for OS in MF patients with or without ruxolitinib under-dosing based on the platelet-adjusted dosing scale

Variables	aHR (95% CI)	P value
Ruxolitinib under-dosing	**2.85 (1.12-7.23)**	**0.03**
Age (in 10-year interval)	1.77 (0.78-4.02)	0.17
Male sex	2.10 (0.83-5.31)	0.12
Higher risk of DIPSS or MYSEC-PM* (Intermediate-2 or High)	1.62 (0.64-4.09)	0.31
Presence of high-risk mutations	4.87 (2.28-10.43)	< 0.01
RBC transfusion dependence	2.21 (0.86-5.66)	0.10
Cytogenetic abnormalities	0.94 (0.36-2.44)	0.89

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