Real-World Ruxolitinib Treatment Pattern in Myelofibrosis Patients With Thrombocytopenia

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Background

- Ruxolitinib (RUX) is the standard treatment for patients with myelofibrosis (MF) to reduce splenomegaly and improve MF-associated symptoms[1]
- RUX treatment is titrated based on platelet counts and is associated with high rates of cytopenia: thrombocytopenia (70%), anemia (96%), and neutropenia (19%)[2]
- The incidence of moderate thrombocytopenia (platelet count <100 × 10^9/L) is approximately 26% in patients with newly diagnosed MF; however, the prevalence is approximately 67% in all patients with MF[3]
- Low platelet count has been identified as an important marker of reduced survival in patients with MF, with associated poor clinical features[4]
- Thrombocytopenia is also an independent predictor in the Dynamic International Prognostic Scoring System plus (DIPSS plus), with an actual 1.4-fold increased risk of death in patients with primary MF 1 year after diagnosis[5]
- Thus, treatment of patients with MF with thrombocytopenia confers a unique challenge and unmet medical need[6]
- Real-world studies will provide a perspective on the current management of MF patients with thrombocytopenia

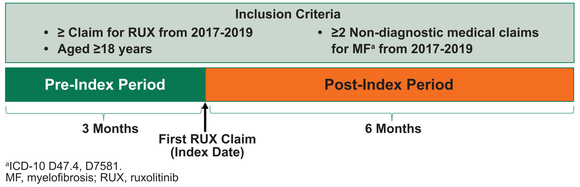
Objective

- To analyze the disease and RUX treatment pattern in patients with MF with thrombocytopenia using de-identified insurance claims data in the United States

Methods

- The IBM MarketScan® Medicare Supplemental Database data was retrospectively analyzed to identify patients aged ≥18 years with ≥1 claim for RUX and ≥2 non-diagnostic medical claims for MF (ICD-10 D47.4, D7581) from 2017–2019 **(Figure 1)**
- The first RUX claim on or after the first MF claim defined the index date
- Patients who continuously enrolled in a health plan for 9 months (3 months before the index date and 6 months after the index date) were included
- Clinical characteristics and RUX treatments were compared in patients with MF with or without a history of thrombocytopenia prior to RUX initiation

Figure 1. Study Design



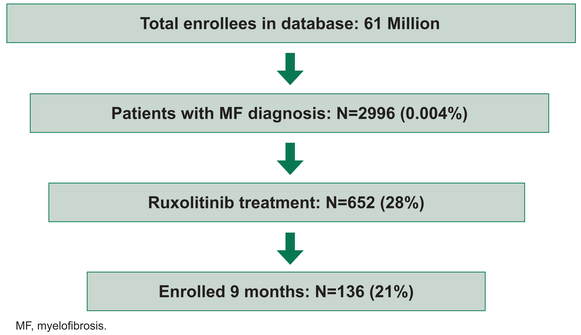
[a]ICD-10 D47.4, D7581.
MF, myelofibrosis; RUX, ruxolitinib

Results

Patient Population

- The database included 2296 patients who were diagnosed with MF; among these, 136 patients met the selection criteria for analysis **(Figure 2)**

Figure 2. Patient Selection



MF, myelofibrosis.

- At baseline, median age was 61 years, 61% were male, 62% had primary MF, and 38% had post-polycythemia vera or essential thrombocythemia MF **(Table 1)**
- Prior to initial RUX treatment, 25% of patients had history of thrombocytopenia

Table 1. Baseline Characteristics

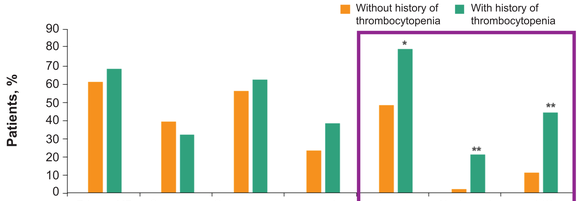
Patients	N=136
Age, median, years (range)	61 (30–94)
Primary MF, n (%)	84 (62)
Post-PV/ET MF, n (%)	13 (38)
Splenomegaly, n (%)	78 (57)
Thrombocytopenia, n (%)	34 (25)
Anemia, n (%)	76 (56)
Neutropenia, n (%)	9 (7)
RBC transfusion, n (%)	26 (19)

ET, essential thrombocythemia; MF, myelofibrosis; PV, polycythemia vera; RBC, red blood cell.

Comparison of Disease Burden by History of Thrombocytopenia

- Patients **with a history of thrombocytopenia** had a higher disease burden (anemia, neutropenia, RBC transfusion) than patients without a history of thrombocytopenia **(Figure 3)**

Figure 3. Disease Burden by History of Thrombocytopenia



History of Thrombo-cytopenia	Primary MF	Secondary MF	Splenomegaly	Leukocytosis	Anemia	Neutropenia	RBC transfusion
With	23 (68)	11 (32)	21 (62)	13 (38)	27 (79)	7 (21)	15 (44)
Without	82 (61)	40 (39)	57 (56)	23 (23)	49 (48)	2 (2)	11 (11)
P Value	0.125	0.47	0.55	0.07	**0.001**	**<0.001**	**<0.001**

*P=0.001. **P<0.001. MF, myelofibrosis; RBC, red blood cell.

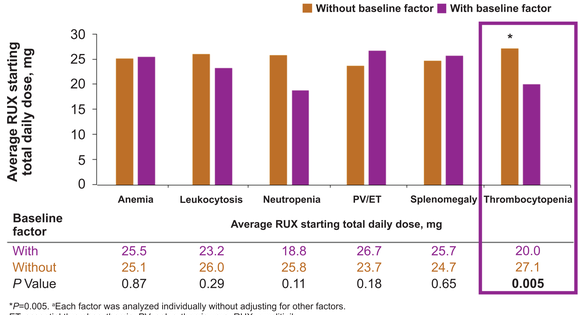
Medical Events During RUX Treatment

- During RUX treatment, there were no statistically significant differences in occurrence of anemia, neutropenia, splenomegaly, and leukocytosis based on history of thrombocytopenia **(Table 2)**

Table 2. Medical Events During RUX Treatment

	Patients With Event / Patients at Risk: n/N (%)		
	Without History of Thrombocytopenia	With History of Thrombocytopenia	*P* Value
Splenomegaly	16/45 (36)	6/13 (46)	0.49
Leukocytosis	8/79 (10)	5/21 (24)	0.1
Thrombocytopenia	34/102 (33)	Not Applicable	Not Applicable
Anemia	22/53 (42)	4/7 (57)	0.43
Neutropenia	21/100 (21)	9/27 (33)	0.18

Figure 4. Baseline Factors Impacting RUX Starting Dose[a]



Baseline factor	Anemia	Leukocytosis	Neutropenia	PV/ET	Splenomegaly	Thrombocytopenia
	Average RUX starting total daily dose, mg					
With	25.5	23.2	18.8	26.7	25.7	20.0
Without	25.1	26.0	25.8	23.7	24.7	27.1
P Value	0.87	0.29	0.11	0.18	0.65	**0.005**

*P=0.005. [a]Each factor was analyzed individually without adjusting for other factors.
ET, essential thrombocythemia; PV, polycythemia vera; RUX, ruxolitinib.

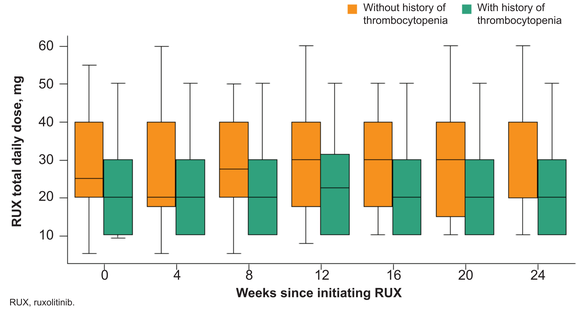
Factors Impacting Initial RUX Dose

- Thrombocytopenia was the only baseline factor that had a statistically significant influence on RUX starting dose, consistent with the RUX label[2] **(Figure 4)**
  - History of thrombocytopenia was associated with a lower starting dose of RUX (average starting daily dose: 20 mg vs 27 mg, P=0.005)

RUX Dose Over Time, by History of Thrombocytopenia

- MF patients with thrombocytopenia were initiated and remained on lower median doses of RUX over their treatment period **(Figure 5)**

Figure 5. RUX Total Daily Dose Over Time



RUX, ruxolitinib.

Summary

- In this real-world data analysis, history of thrombocytopenia was a major factor influencing the starting dose of RUX for patients with MF; these patients also remained on lower median doses of RUX over the treatment period
- The data analysis showed patients with history of thrombocytopenia were also likely to have history of anemia, neutropenia, and RBC transfusion
- Our findings underscore the need for more treatment options to manage patients with MF with thrombocytopenia
- Limitations of these analyses include:
  - This database contained patients on a commercial health plan with a Medicare supplement; elderly populations may be under-represented in this claims database
  - Claims data are payment records and may not reflect the true medical conditions
  - Platelet count values were not available to define severity of thrombocytopenia

References

1. Barraco D, et al. *Drugs Context.* 2019;8:212603. **2.** Ruxolitinib US prescribing information. 2021. Accessed May 11, 2022. https://www.jakafi.com/pdf/prescribing-information.pdf. **3.** Kantarjian H, et al. *Cancer.* 2007;109:1705-14. **4.** Masarova L, et al. *Eur J Haematol.* 2018;100:257-63. **5.** Gangat N, et al. *J Clin Oncol.* 2011;29:392-7. **6.** Scotch AH, et al. *Leuk Res.* 2017;63:34-40.