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ELEVENTH ANNUAL MEETING

INCIDENCE OF BLAST PHASE IN MYELOFIBROSIS ACCORDING TO ANEMIA SEVERITY

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INTRODUCTION

Myelofibrosis (MF) is frequently characterized by anemia and in 10-20% of cases it can evolve into blast phase (BP). Anemia in MF is associated with reduced survival and -in primary MF (PMF)- also with risk of BP. The interest of studying anemia-improving molecules is growing in MF, though the impact of such treatments on BP occurrence is unknown.

OBJECTIVE

To report the incidence of BP according to anemia severity in large real-world cohorts of PMF and secondary MF patients, treated with or without JAK inhibitors (JAKi), mainly ruxolitinib (RUX).

PATIENTS AND METHOD

A total of 2025 MF patients from the database of the University of Insubria (Varese, Italy), the DIPSS study [**1**], the MYSEC project [**2**], and the RUXO-REL study [**3**] entered the analysis. Anemia and its severity have been defined applying the Common Terminology Criteria for Adverse Events (CTCAE) grading [**4**]: grade 3/4 anemia corresponded to Hb <8 g/dL, grade 2 to Hb 8–10 g/dL, while grade 1 (Hb >10 g/dL) anemia was grouped together with normal Hb values.

RESULTS

Among 1752 MF subjects largely (84%) unexposed to RUX (Cohort 1) and followed up for a median time of 4 years, BP incidence was 2.5% patients per year (p-y). BP-free survival was significantly associated (*p<0.0001*) with the presence and severity of anemia (**Figure 1**). BP rate reached 4.3% and 4.5% p-y in case of patients with CTCAE grade 3/4 and grade 2 anemia at MF diagnosis, respectively (32% of the cohort, **Table 1**). Among 273 MF cases treated with RUX (Cohort 2) and with a median follow up of 2.5 years, BP incidence was 2.89% p-y and it reached 4.86% p-y in case of baseline CTCAE grade 2 anemia (one third of total, **Table 1**).

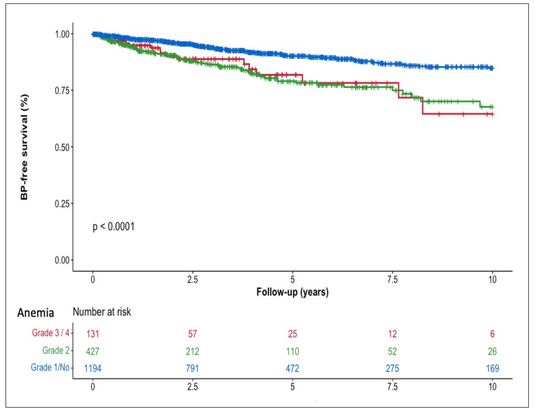


Figure 1. Kaplan-Meier curve describes the blast phase (BP)-free survival of the 1752 myelofibrosis patients of Cohort 1, within the different Common Terminology Criteria for Adverse Events (CTCAE) anemia classes.

Within patients with red blood cell transfusion-dependency at six months of RUX (21% of the exposed), BP rate was 4.2% p-y.

No difference was found in the incidence rate ratio of BP between RUX-unexposed and -exposed subjects, in the overall populations and based on CTCAE grading for anemia (**Table 1**).

	Cohort 1		Cohort 2		Incidence rate ratio (IRR)		
	Incidence (% p-y)	95%CI	Incidence (% p-y)	95%CI	IRR	95%CI	p-value
Overall	2.5	2.2-2.9	2.89	1.9-4.4	0.87	0.56-1.41	0.53
CTCAE grade 3/4 anemia	4.3	2.1-1.7	1.61	0.11-23.38	2.67	0.42-111.74	0.35
CTCAE grade 2 anemia	4.5	2.7-7.5	4.86	1.1-20.91	0.93	0.49-1.89	0.80
CTCAE grade 1/no anemia	1.8	1.5-2.3	2.05	1.1-3.82	0.91	0.47-1.95	0.74

Table 1. *Comparison of blast phase incidence between ruxolitinib-unexposed Cohort 1 and Cohort 2 patients, in the overall datasets and based on anemia degree according to the CTCAE classification.* ***Legend.*** *p-y= persons-year, 95%CI= 95% confidence interval, CTCAE= Common Terminology Criteria for Adverse Events.*

CONCLUSIONS

Our study reiterates the high frequency of anemia in MF, including more contemporary patients treated with JAKis, and assesses the impact of varying degrees of anemia on BP progression.

Occurrence of post-MF BP is left unaffected by RUX treatment, and these data will be a useful reference for physicians to make decisions on the efficacy and safety profile of innovative anemia treatments.

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