Economic Burden of Cytopenia in Patients with Myelofibrosis: Analysis of a US National Administrative Claims Database

#220

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CONCLUSIONS

- **Healthcare resource utilization (HCRU) and costs were significantly higher in patients with cytopenic myelofibrosis (MF).**
- **Use of appropriate MF treatments with an ideal mechanism to manage cytopenia may reduce the overall burden of disease to patients and the healthcare system.**

BACKGROUND

- Cytopenic myelofibrosis (MF) is characterized by the presence of anemia and/or thrombocytopenia, which may be present at diagnosis or develop over the course of the disease.[1]
- Cytopenic MF is associated with worse clinical prognosis and a higher risk of mortality than non-cytopenic MF.[2] However, little is known about the economic burden of cytopenia in patients with MF.

AIM

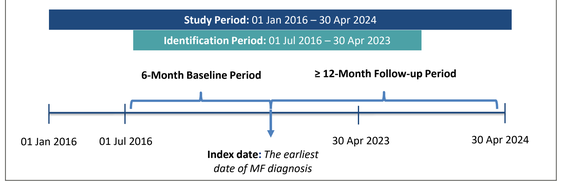
- To describe healthcare resource utilization (HCRU) and costs in patients with cytopenic MF compared to MF patients without cytopenia in the United States.

METHODS

Study Design

- This retrospective study included adult patients diagnosed with MF (ICD-10 codes D75.81 and D47.4) from July 2016 to April 2023 using administrative claims data from the Optum Research Database.
- Patients were required to be continuously enrolled in insurance plans for ≥6 months before diagnosis (baseline period) and ≥12 months after diagnosis, unless they died within 12 months (follow-up period) **(Figure 1)**.
- Cytopenia was defined as a diagnosis of anemia or thrombocytopenia in claims within 30 days before or after diagnosis of MF, or prior to the start of systemic anti-cancer treatment if the treatment was initiated within 30 days of MF diagnosis.

Figure 1. Study schematic



Study Outcomes

- All-cause HCRU and costs in baseline and follow-up periods, as well as MF-related HCRU and costs in the follow-up period were reported as per-patient-per-month; costs were CPI adjusted to 2023 USD.

Analyses

- Chi-square or t-tests were used to compare differences by cytopenic status. P<0.05 was significant.

RESULTS

Table 1: Baseline Demographic and Clinical Characteristics

	Total (N=1,532)	Cytopenia (N=1,074)	No Cytopenia (N=458)	p-value†
Age, mean (SD)	72.4 (11.4)	73.9 (10.7)	68.9 (12.0)	<0.001
Age group, n (%)				
18-44	43 (2.8)	22 (2.1)	21 (4.6)	0.006
45-64	248 (16.2)	135 (12.6)	113 (24.7)	<0.001
65+	1,241 (81.0)	917 (85.4)	324 (70.7)	<0.001
Gender, n (%)				
Female	713 (46.5)	486 (45.3)	227 (49.6)	0.121
Male	819 (53.5)	588 (54.8)	231 (50.4)	0.121
Region, n (%)				
Northeast	281 (18.3)	196 (18.3)	85 (18.6)	0.886
Midwest	384 (25.1)	266 (24.8)	118 (25.8)	0.680
South	661 (43.2)	475 (44.2)	186 (40.6)	0.191
West*	206 (13.5)	137 (12.8)	69 (15.1)	0.225
Insurance type, n (%)				
Commercial	308 (20.1)	170 (15.9)	138 (30.1)	<0.001
Medicare Advantage	1,224 (80.0)	904 (84.2)	320 (69.9)	<0.001
Quan-Charlson comorbidity score, mean (SD)	1.9 (2.1)	2.2 (2.2)	1.2 (1.6)	<0.001

Notes: *Includes n<5 patients with *Other* geographic region.
† P-values were calculated using chi-square tests for categorical variables and independent t-tests for continuous variables.

Study Population

- Of the 1,532 patients who met the study eligibility criteria, 1,074 (70%) were cytopenic at the time of MF diagnosis.

Patient Demographics and Clinical Characteristics

- Compared to patients who did not have cytopenia at MF diagnosis, patients with cytopenic MF were older and had higher baseline Charlson comorbidity score **(Table 1)**.

Table 2: All-cause HCRU Counts at Baseline and Follow-up

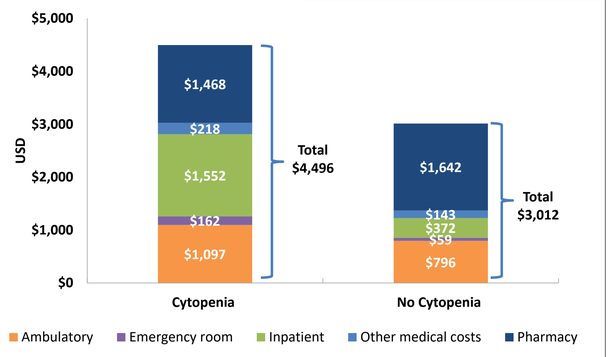
All-cause HCRU Counts (PPPM), mean (SD)	Baseline			Follow-up		
	Cytopenia (N=1,074)	No Cytopenia (N=458)	p-value*	Cytopenia (N=1,074)	No Cytopenia (N=458)	p-value*
Ambulatory visit	3.7 (3.4)	2.8 (2.5)	<0.001	5.2 (4.2)	3.5 (2.9)	<0.001
Office visit	1.7 (1.6)	1.4 (1.4)	<0.001	1.9 (1.8)	1.6 (1.3)	<0.001
Outpatient visit	2.0 (2.8)	1.3 (2.0)	<0.001	3.3 (3.6)	2.0 (2.4)	<0.001
Emergency room visit	0.2 (0.3)	0.1 (0.2)	<0.001	0.4 (0.7)	0.2 (0.4)	<0.001
Inpatient admit	0.1 (0.1)	0.0 (0.1)	<0.001	0.2 (0.4)	0.1 (0.1)	<0.001
Pharmacy fill	3.1 (3.0)	2.6 (2.2)	<0.001	3.7 (2.7)	3.2 (2.3)	<0.001

Notes: * P-values represent comparisons between cytopenia and non-cytopenia groups, assessed using independent t-tests.
Abbreviation: PPPM, per-patient-per-month

All-cause HCRU at Baseline and Follow-up

- During both the baseline and follow-up periods, individuals with cytopenic MF had significantly higher all-cause HCRU including ambulatory visits, emergency room (ER) visits, hospitalizations, and pharmacy fills compared to those without cytopenia at diagnosis (p<0.001) **(Table 2)**.

Figure 2. All-cause Healthcare Costs During Baseline by Cytopenia

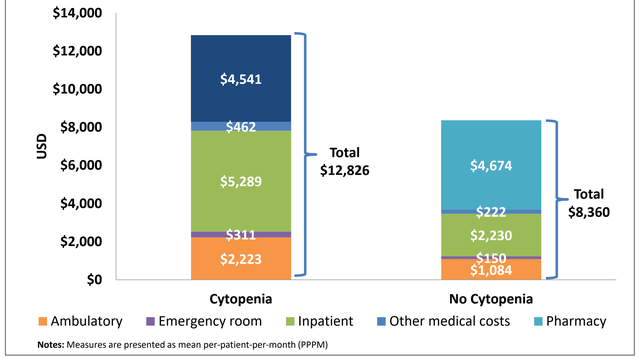


Notes: Measures are presented as mean per-patient-per-month (PPPM)

All-Cause Healthcare Costs at Baseline

- All-cause total healthcare cost in the baseline period was significantly higher in patients with cytopenic MF compared to patients without cytopenia (p<0.001) **(Figure 2)**.

Figure 3. All-cause Healthcare Costs During Follow-up by Cytopenia



Notes: Measures are presented as mean per-patient-per-month (PPPM)

All-Cause Healthcare Costs during Follow-up

- All-cause total healthcare cost during the follow-up period was 53% higher for patients with cytopenia vs patients without cytopenia ($12,826±20,395 vs $8,360±10,897 PPPM, p<0.001) **(Figure 3)**.

Table 3: MF-Related HCRU During Follow-up

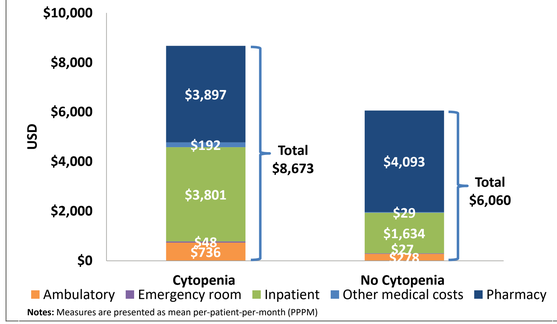
MF-Related HCRU (PPPM), mean (SD)	Cytopenia (N=1,074)	No Cytopenia (N=458)	p-value
Ambulatory visit	1.31 (1.72)	0.76 (1.25)	<0.001
Office visit	0.41 (0.74)	0.24 (0.43)	<0.001
Outpatient visit	0.90 (1.48)	0.52 (1.10)	<0.001
Emergency room visit	0.05 (0.18)	0.03 (0.26)	0.172
Inpatient admission	0.12 (0.32)	0.04 (0.09)	<0.001
Length of stays (days)	2.67 (4.60)	1.30 (2.18)	<0.001
Pharmacy fill	0.33 (0.39)	0.39 (0.43)	0.003

Abbreviation: PPPM, per-patient-per-month

MF-Related HCRU during Follow-up

- Patients with cytopenic MF had 72% more MF-related ambulatory visits and 200% more hospitalizations, but fewer MF-related pharmacy fills compared to those without cytopenia (p=0.003) **(Table 3)**.

Figure 4. MF-Related Healthcare Costs During Follow-up by Cytopenia



Notes: Measures are presented as mean per-patient-per-month (PPPM)

MF-Related Healthcare Costs at Follow-up

- Patients with cytopenic MF had significantly higher MF-related total healthcare costs (43%) than patients without cytopenia ($8,673±18,291 vs $6,060±9.174; p<0.001) **(Figure 4)**.

References

1. Chifotides HT, Verstovsek S, Bose P. 2023. Cancers. 15:3331.
2. Coltro G, Mannelli F, Loscocco GG, et al. 2022. Blood Cancer J. 12:116.

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