

# Prophylaxis of chemotherapy-induced febrile neutropenia with biosimilar filgrastim: Description of patients, treatment patterns and outcomes in the MONITOR-GCSF Study in Romania

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## Introduction

- Chemotherapy-induced febrile neutropenia (CIN/FN) is a frequent and potentially life-threatening complication experienced in patients undergoing cancer treatment. FN can result in hospitalization and can jeopardize antineoplastic treatment through chemotherapy delay or dose reduction<sup>1,2</sup> as well as delays and cancellations of surgery. FN is also associated with increased morbidity, mortality, and health care costs.<sup>3</sup>
- The European Organization for Research and Treatment of Cancer (EORTC), among other clinical organizations, has established evidence-based guidelines for the use of granulocyte colony-stimulating factor (G-CSF) to reduce the incidence of CIN/FN.<sup>4</sup>
- The primary aims of the MONITOR-GCSF study are to<sup>5</sup>:
  - describe the patient population at risk for FN and treated prophylactically with biosimilar filgrastim (Zarzio<sup>®</sup>, Sandoz)
  - describe prophylaxis patterns involving Zarzio<sup>®</sup> and their congruence with the EORTC guidelines
  - identify the multi-level (patient- and centre-level) determinants of patient outcomes in terms of breakthrough episodes of CIN/FN and impact on chemotherapy delivery.
- This current analysis describes the patient characteristics, treatment patterns of Zarzio<sup>®</sup>, and outcomes in the Romanian sample.

## Methods

- MONITOR-GCSF is an international, prospective, observational, open-label, pharmaco-epidemiologic study of cancer patients at risk of CIN/FN who received commercially available Zarzio<sup>®</sup> for prophylactic purposes.
- Treatment with Zarzio<sup>®</sup> was per the treating physician's best clinical judgment. Thus, there was no fixed protocol for treatment initiation, dose, or duration; data were collected on the actual real-world practice patterns for up to six chemotherapy cycles.
- Treatment with Zarzio<sup>®</sup> is described relative to the EORTC guideline recommendations.<sup>4</sup> The EORTC guideline algorithm is illustrated in Figure 1.
- 64 evaluable patients from 7 centers in Romania (from a total of 1447 patients from 140 centers from 12 European countries) participating in the MONITOR-GCSF study are presented in these analyses which include 300 cycles.

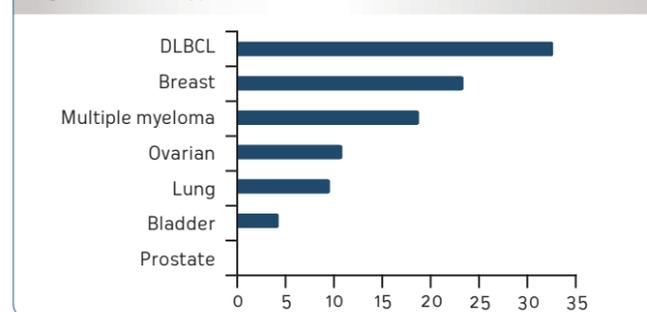
## Results

- Table 1 lists patient demographic characteristics and Figure 2 presents cancer types. The most common cancers were diffuse large B-cell lymphoma (DLBCL) (33%), breast (23%), and multiple myeloma (19%) with a majority of patients (51.6%) having hematological cancers and 48.4% with solid tumors.

**Table 1. Patient characteristics**

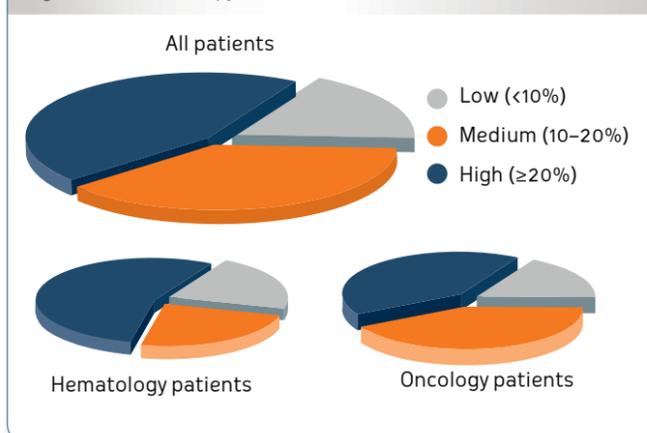
Gender	Male	Female
	39.1%	60.9%
Age (years)	Mean ± SD (min, max) 58.0 ± 10.7 (32, 78)	

**Figure 2. Cancer type**



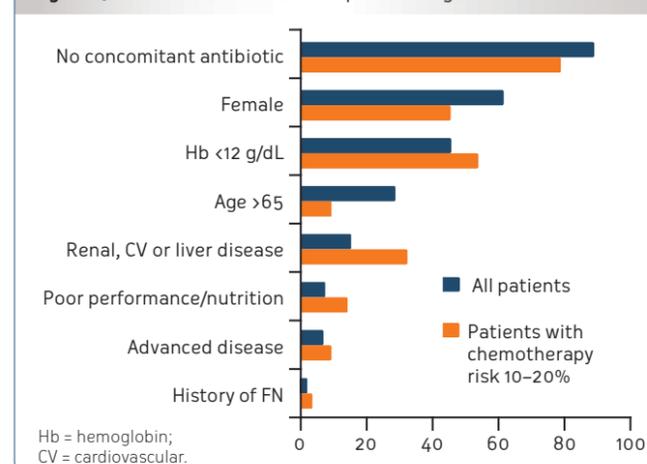
- Figure 3 shows chemotherapy-related risk of FN for all patients and for patients with hematological cancer (hematology) and solid tumors (oncology). A higher percentage of hematology patients (55%) were treated with chemotherapy regimens that have high risk (>20%) of associated FN compared with oncology patients (35%).

**Figure 3. Chemotherapy-related risk for FN**



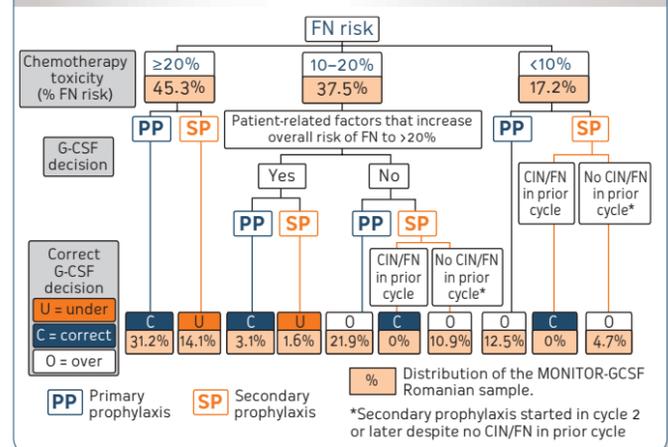
- Figure 4 illustrates patient-related risk factors for FN for all patients and for those treated with chemotherapy regimens with medium risk (10-20%) of associated FN.
- Zarzio<sup>®</sup> prophylaxis initiation (primary vs. secondary) relative to the EORTC guideline recommendations is illustrated in Figure 5. Primary prophylaxis was initiated in 69% of all patients, with 71% of hematology patients and 67% of oncology patients receiving primary prophylaxis. Prophylaxis, either primary or secondary, was correctly initiated per EORTC guideline recommendations (considering CIN/FN risk and patient-related factors) in 34% of patients.

**Figure 4. Patient-related risks of FN per EORTC guidelines**



- Table 2 presents Zarzio<sup>®</sup> treatment patterns. Zarzio<sup>®</sup> dose of 48 MIU/day was given in the majority (52.2%) of cycles and 30 MIU/day given in 47.8% of cycles. Zarzio<sup>®</sup> was started on average 1.0 ± 1.9 days after chemotherapy and given for 2.0 ± 1.0 days.

**Figure 5. Zarzio<sup>®</sup> initiation relative to the EORTC guidelines**



- CIN (any grade) occurred in 2.7% of all cycles and 9.4% of patients had one or more episodes of CIN (any grade); see Table 3. 6.3% of patients had at least one episode of Grade 3 or 4 CIN of which 1.6% were febrile. CIN/FN-related hospitalizations were experienced by 1.6% of patients. CIN/FN-related chemotherapy disturbances (dose reduction, delay or cancellation) occurred in 4.7%.

**Table 2. Zarzio<sup>®</sup> treatment patterns**

<b>Prophylaxis type</b>	Primary	68.8%
	Secondary	31.2%
<b>Prophylaxis decision</b>	Under treated	15.7%
	Correctly treated	34.3%
	Over treated	50.0%
<b>Dose</b>	30 MIU/day	47.8%
	48 MIU/day	52.2%
<b>Day of initiation</b>	During chemotherapy (day 0)	48.1%
	Per guidelines (day 1-3)	51.2%
	Late (day 4 or later)	0.7%
<b>Duration</b>	1-3 days	92.3%
	4-5 days	7.4%
	6 or more days	0.3%

**Table 3. CIN/FN Outcomes**

Outcome	Incidence (%)
CIN any Grade	9.4
CIN Grade 3 or 4	6.3
CIN Grade 4	1.6
FN	1.6
CIN/FN-related hospitalizations	1.6
CIN/FN-related chemotherapy disturbances (dose reduction, delay or cancellation)	4.7

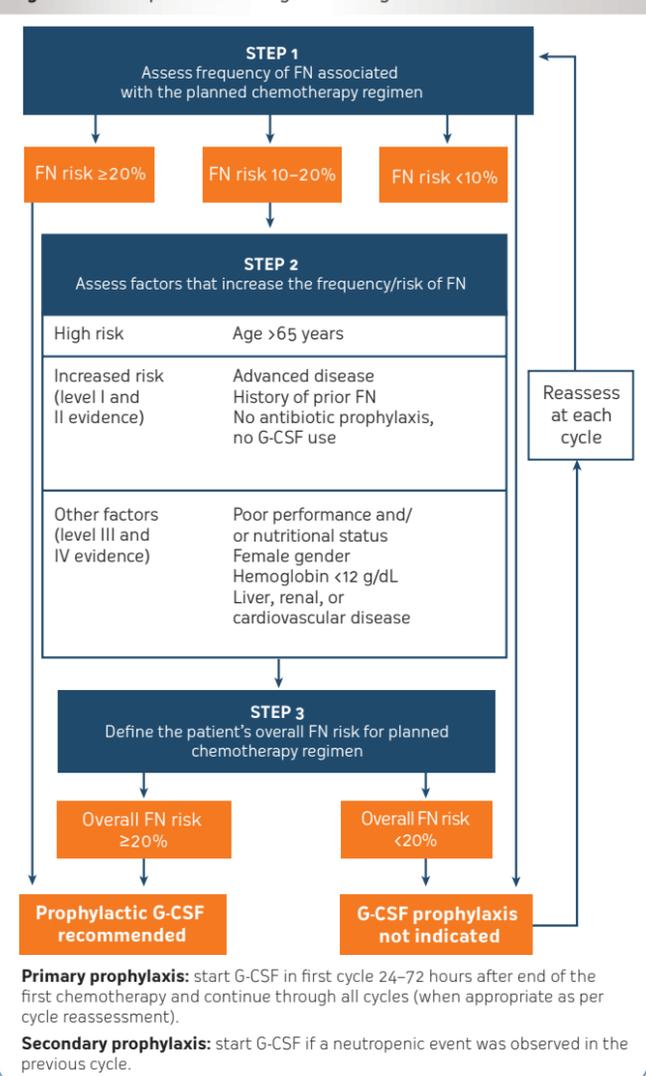
## Conclusions

- Real-world variations in practice patterns of biosimilar G-CSF (Zarzio<sup>®</sup>) are evident in the Romanian sample in terms of:
  - type of prophylaxis
  - prophylaxis decision (relative to guideline recommendations)
  - day of initiation.
- Clinician decision to 'over treat' in the low and moderate chemotherapy risk groups may be due to patient-related risk factors, safety profile of Zarzio<sup>®</sup>, and/or affordability of biosimilar G-CSF.
- Incidence of FN and CIN/FN-related hospitalizations is low.
- Zarzio<sup>®</sup> has similar real-world effectiveness as the originator and the G-CSF class in general.

## References

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**Figure 1. 2010 updated EORTC guideline algorithm**



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