EARLY VS. LATE G-CSF INITIATION AND HOSPITAL LENGTH OF STAY IN SEVERE NEUTROPENIA

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INTRODUCTION

Severe neutropenia (ANC <500 cells/μL) drives infection, prolonged hospitalization, and heavy healthcare use in oncology inpatients.[1]
G-CSF is well established for prophylaxis, but guidelines offer little direction on *when* to start G-CSF once a patient is hospitalized with severe neutropenia and treatment is indicated.[2–4]
This gap motivated our study: among adults already selected for G-CSF, does earlier administration change inpatient outcomes?

AIM

Among adult inpatients with severe neutropenia (ANC <500 cells/μL) already treated with G-CSF, to determine whether initiation within 24 hours of admission ("early") is associated with:

- Shorter hospital length of stay (primary outcome)
- Lower 30-day readmission (safety outcome)

— vs. initiation more than 24 hours after admission ("late").

METHOD

- Design: Single-center retrospective cohort; EHR data, 2018–2025.
- Population: Adults with ≥1 G-CSF dose. Primary cohort: ANC <500 cells/μL (n=100/235).
- Exposure: Early = dose ≤24h after admission (n=81); Late = >24h (n=19).
- Outcomes: Primary: hospital LOS. Safety: readmission. Secondary: discharge ANC.
- Analysis: Mann–Whitney U test; Hodges–Lehmann shift (95% CI). Subgroups: infection, febrile neutropenia, ICU.

CONCLUSIONS

Among hospitalized adults with severe neutropenia selected for G-CSF, initiating therapy within 24 hours was associated with approximately 3 fewer hospital days compared with later initiation, with no difference in readmission or In-hospital mortality. This does not support routine prophylactic G-CSF, but suggests earlier administration may reduce inpatient utilization once therapeutic G-CSF is chosen.[5,6]
Multicenter prospective studies are warranted to confirm this association.

RESULTS

43% Shorter Hospital Stay with Early G-CSF Initiation (4.0 vs. 7.0 days; p < 0.001)

Primary cohort: 100 adults with severe neutropenia, from 235 total G-CSF encounters.

- Early G-CSF (≤24h): 81 (81%); Late (>24h): 19 (19%). Time to first dose: 10.2h vs. 35.0h.
- 30-day readmission: 17.3% vs. 15.8% (p=1.000). In-hospital Mortality: 8.6% vs. 5.3% (p=1.000).
- Discharge ANC: 2.8 vs. 3.0 K/μL (p=0.308).

LOS reduction was consistent across all subgroups — see Figures 1–2.

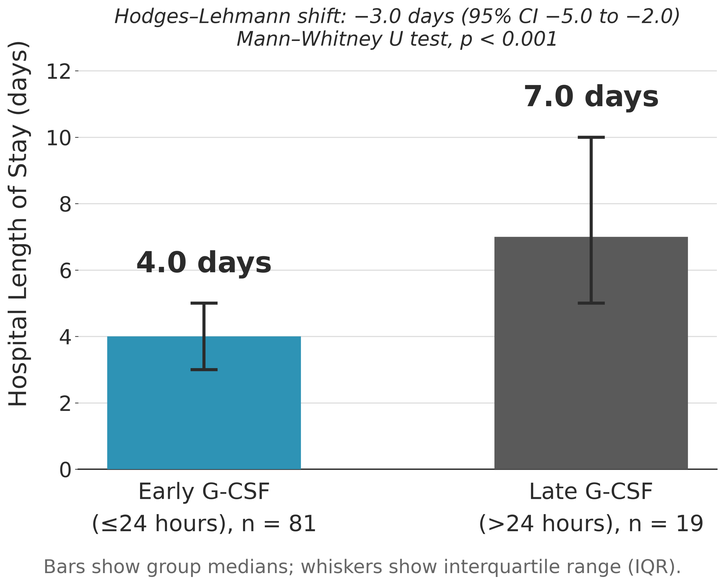

Figure 1. Median LOS was shorter with early vs. late G-CSF initiation (n=100).

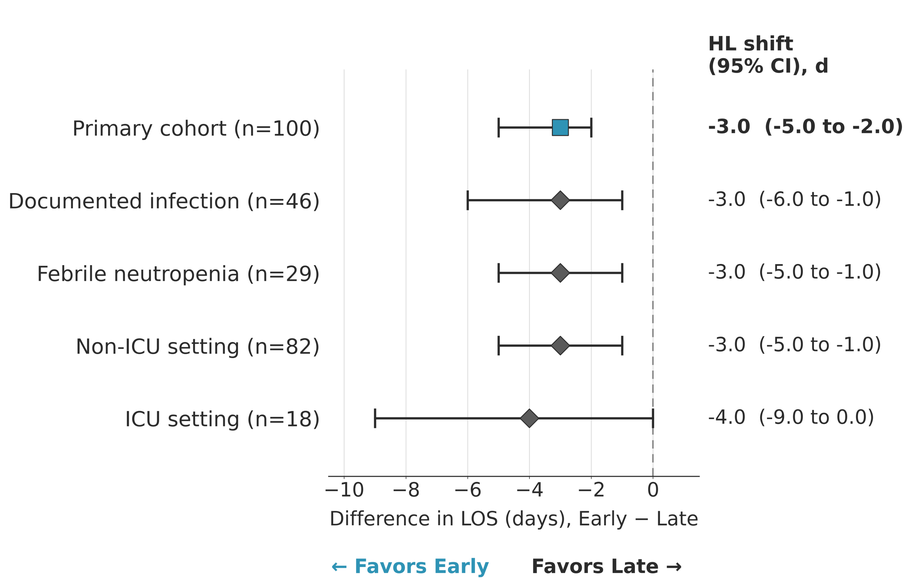

Figure 2. HL shift in LOS (Early − Late) by subgroup. Negative values favor early G-CSF.

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