National Inpatient Outcomes Following Tagraxofusp Administration for Blastic Plasmacytoid Dendritic Cell Neoplasm and Related Hematologic Malignancies

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INTRODUCTION

Tagraxofusp is an important CD123-directed therapy for blastic plasmacytoid dendritic cell neoplasm (BPDCN) and related hematologic malignancies. While the therapy is associated with potentially serious toxicities, nationally representative inpatient outcomes following its administration remain poorly characterized.

AIM

To evaluate the real-world incidence of severe inpatient toxicities, mortality, and resource utilization associated with tagraxofusp administration using a nationally representative database.

METHOD

Design:
Retrospective cohort study.
Setting:
2019–2023 Healthcare Cost and Utilization Project National Inpatient Sample.
Population:
Adult acute-care hospitalizations with an ICD-10-PCS procedure code indicating tagraxofusp administration. The final cohort included 370 weighted hospitalizations nationally. BPDCN accounted for 77.0% of hospitalizations, while acute myeloid leukemia and chronic myelomonocytic leukemia each accounted for 6.8%.

CONCLUSIONS

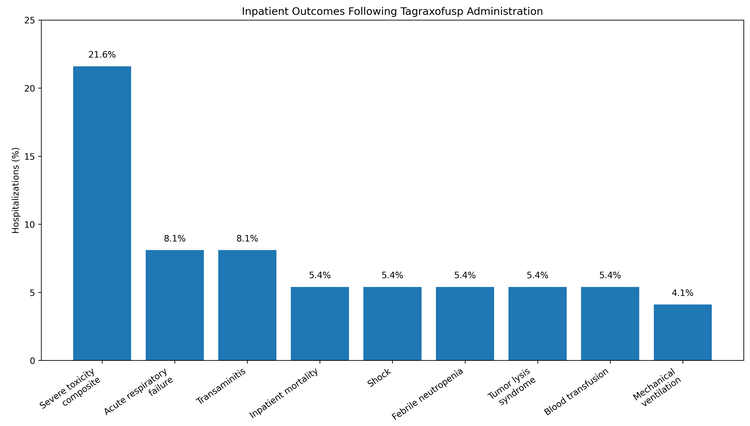
Tagraxofusp administration was associated with substantial acute inpatient morbidity, with severe toxicity occurring in approximately one in five hospitalizations and inpatient mortality occurring in approximately one in twenty. These nationally representative findings support careful inpatient monitoring and may help inform future risk-stratification strategies for patients receiving tagraxofusp. Larger prospective studies are needed to better identify patients at highest risk for serious toxicity.

RESULTS

Cohort:
We identified **370 weighted inpatient hospitalizations** nationally. The mean patient age was 62.3 years, and 21.6% of the cohort was female. BPDCN was identified in 77.0% of hospitalizations.
Overall Severe Toxicity:
The composite severe toxicity outcome occurred in **21.6%** of hospitalizations (80 cases).
Individual Severe Events:
- Inpatient mortality: **5.4%**
- Acute respiratory failure: **8.1%**
- Shock: **5.4%**
- Febrile neutropenia: **5.4%**
- Tumor lysis syndrome: **5.4%**
- Mechanical ventilation: **4.1%**
- Blood transfusion: **5.4%**
- Transaminitis: **8.1%**
- Capillary leak syndrome: **0% coded cases**
- Acute hepatic failure: **0% coded cases**

Resource Utilization:
- Mean length of stay: **8.7 days**
- Mean inflation-adjusted hospitalization cost: **$169,939**

Multivariable Analysis: Higher comorbidity burden was associated with increased odds of severe toxicity. However, sparse events and quasi-complete separation limited the interpretability and reliability of the multivariable model.



LIMITATIONS

- **Retrospective Administrative Design:** Reliance on ICD-10-PCS/CM coding may result in misclassification or underreporting of adverse events and toxicity.
- **Small Sample Size:** Only 370 weighted hospitalizations were identified, limiting statistical power and producing imprecise estimates for individual adverse events.
- **Sparse Events:** The limited number of severe events and quasi-complete separation reduced the reliability and interpretability of multivariable modeling.
- **Limited Clinical Detail:** The National Inpatient Sample does not provide detailed information regarding disease stage, treatment dose, prior therapies, laboratory values, performance status, or other clinical factors that may influence toxicity risk.
- **Inpatient-Only Analysis:** Findings are limited to hospitalized patients and may not reflect outcomes among patients receiving tagraxofusp in other treatment settings.

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