OUTPATIENT TRANSFUSIONS AND PATIENT BLOOD MANAGEMENT

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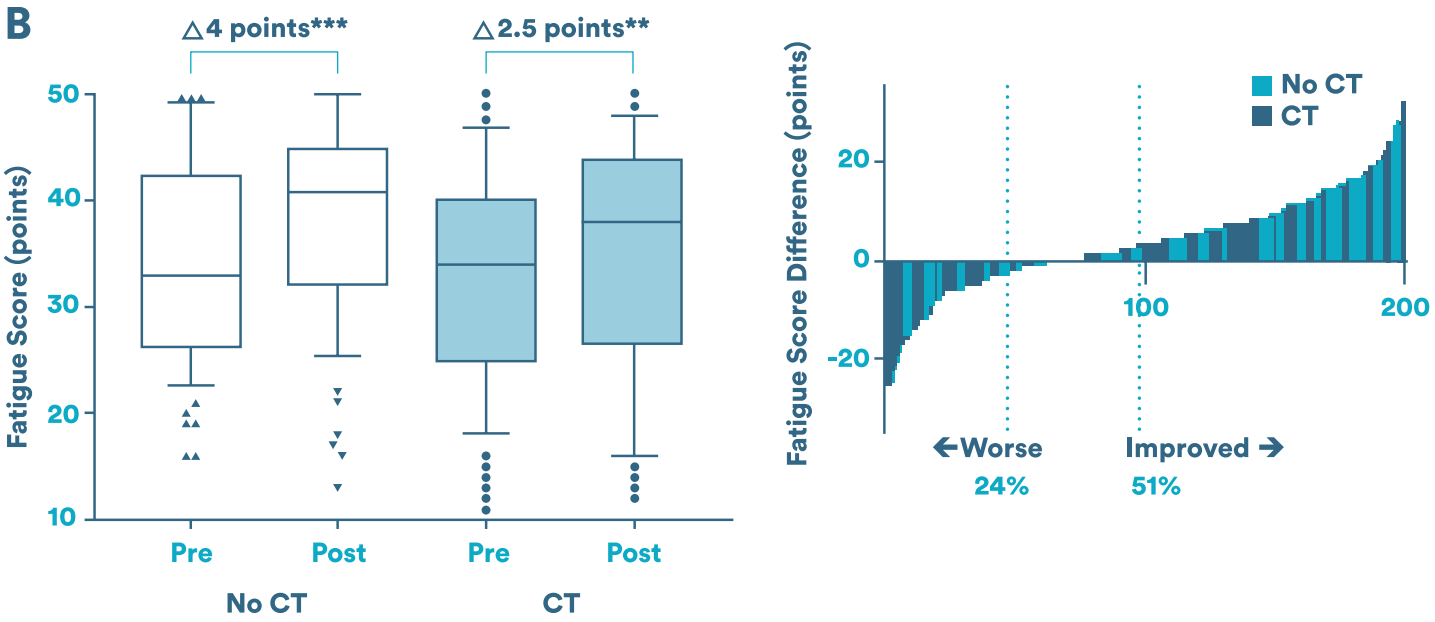
Outpatient blood transfusions are a topic sparsely covered in published scientific literature. In 2001, data from Medicare found that 0.52% of Americans aged 65 years or older had received an outpatient blood transfusion. The most common attributable cause was anemia (55%), followed by cancerous tumors (17%).[1] Outpatient blood transfusions are considered a viable option for patients who are stable, anemic, transfusion-dependent, or receiving ongoing treatment. In the Recipient Epidemiology and Donor Evaluation Study-III (REDS-III) for 2013-2014, 27% of transfusions for blood diseases and neoplasms were conducted in an outpatient setting.[2]

The Centers for Medicare & Medicaid Services (CMS) administrative databases were used to determine the rate of adverse events associated with outpatient transfusions for 2007-2008.[3] An increase in the percentage of elderly Medicare recipients receiving outpatient transfusions was 1% for 2007-2008, almost double the rate from 2001. The data also showed a higher rate of transfusion-related acute lung injury (TRALI) for the component combination of red blood cells (RBC) and platelets (PLT) (RR 9.0, 95% CI 1.75-46.38; p=0.033). ABO incompatibility occurred in 43 cases with a significantly higher risk for irradiated leukoreduced RBCs (RR 37.4, 95% CI 10.6-132.6; p< 0.0001) when compared with non-irradiated leukoreduced RBCs. TRALI associated with outpatient transfusions is infrequent and was theorized purported to stem from lower predisposing host factors and patients with fewer comorbidities.

Patients with cancer or chronic anemia are more likely to be transfused in an outpatient setting. The Red Cells in Outpatients Transfusion Outcomes (RETRO) study aimed to measure the impact of transfusion on function and quality of life.[4] Fatigue and dyspnea quality of life scores and a six-minute walk test were conducted one week before and after transfusion in 208 patients. There was a 20-meter improvement in walk distance and an improvement in fatigue scores. No changes were noted in dyspnea scores. Combining the two primary outcomes, 70% (146 of 208) of patients showed clinically important improvements. Although promising results, more studies with larger sample sizes are needed to determine if these outcomes are replicable.



FACIT=Fatigue scale score, in points; Median improvement in fatigue in all patients combined was 3 points (IQR, −2 to 9 points); p < 0.001. CT=Cancer Treatment

GUIDELINES AND STANDARDS

The limited resource of platelets with accompanying shortages triggered a recent national survey to explore use in the outpatient setting.[5] Queries were made regarding formal outpatient platelet guidelines, thresholds for platelet transfusions, and review processes. A survey was sent to 735 AABB institutional members, with 317 responses (43%) from 44 states. Half of the respondents reported having formal guidelines for outpatient platelet transfusions. Fifty-one percent of the guidelines have a < 10,000/μL threshold for transfusing stable afebrile patients, and 29% use < 20,000/μL. Fewer than half (45%) of respondents said they monitor outpatient platelet transfusions using prospective and retrospective auditing; 25% use only retrospective auditing. The survey results demonstrate institutions' efforts to provide guidance surrounding outpatient platelet transfusion without a strong level of supporting evidence.

AABB's Standards for a Patient Blood Management Program (4th edition) includes an activity for level I and level II certification, indicating that iron and micronutrient deficiencies should be evaluated and managed for those being transfused with RBCs in an outpatient setting.[6] A contributing cause of anemia is often iron and/or micronutrient deficiencies; therefore, having processes to identify and manage can reduce the need for RBC transfusions.

The 1st edition of AABB's *Standards for Out-of-Hospital Transfusion Administration Services (OOHT Standards)* went into effect July 1, 2018. The *OOHT Standards* apply to nursing homes, infusion centers, hospices, and in-home care. A recent article from *AABB News* on in-home transfusion[7] cites the benefit to terminally ill patients of removing the burden of hospital visits and lengthy wait times

due to staffing shortages. However, the current reimbursement system is inadequate for hospice patients to receive transfusion therapy; the 2023 hospice patient rate for all home care services is $218.33 per day, which is lower than the cost of one blood transfusion. It is a misconception that blood transfusions cannot be administered to patients in hospice. AABB and other organizations urged CMS earlier this year to make the necessary changes to provide Medicare patients with access to blood transfusions at end-of-life. Bill (S.2186) was reintroduced in June 2023 to allow separate billing for transfusion services for life-limiting illnesses.[8] In some states, such as New York, there is a requirement that for an outpatient transfusion, the patient must not have a history of a hemolytic or anaphylactic transfusion reaction.[9]

PBM PROGRAMS

The scientific literature lacks strategies and metrics regarding a PBM program's role in outpatient transfusions. Therefore, the author of this article posted in the 162-member AABB PBM Community (6/20/2023) asking program coordinators and transfusion safety officers a series of questions, including:

- Are you monitoring outpatient blood utilization? Are there any actions based on the data?
- Do you have separate guidelines for outpatient transfusions?
- Do you have PBM protocols for outpatient transfusions to evaluate for nutritional deficiencies?
- Do you monitor or compare clinical practices between inpatient and outpatient (i.e., quantity ordered, pre-transfusion trigger, post-transfusion target)?
- Do you include outcomes for outpatient transfusions (i.e., rate of transfusion reactions, hospital admission following outpatient transfusion)?

The first response submitted stated that outpatient transfusions are included in utilization and receive the same review as inpatient transfusions regarding thresholds and guidelines. The percentage of outpatient transfusions is monitored monthly. Outpatient transfusions are removed in the calculation of an RBC usage rate. Reporting of transfusion reactions includes those occurring in an outpatient setting. The response to this query aligns with the lack of published literature, suggesting an opportunity for PBM programs to create metrics, processes, initiatives and reportable outcomes.

SUMMARY

There are more questions than answers regarding outpatient transfusions, such as whether institutions need separate guidelines, the best approach to monitoring and auditing, and the reportable metrics and outcomes. Is there a more defined role for PBM programs? Are institutions maximizing outpatient transfusions by improving the identification and access of patients who would benefit? Should institutions providing home care explore in-home transfusions? A literature gap will hopefully be filled in the years to come.

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