Letter to the Editor

Patient Blood Management in the Emergency Department: reducing transfusions and anemia-related admissions at 6 months

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Dear Editor,

Anemia is a widely prevalent condition, with the World Health Organization (WHO) estimating that approximately 25% of the global population is affected, and iron deficiency (ID) represents the most common cause[1]. Furthermore, in frail subpopulations with comorbidities such as heart failure or chronic kidney disease, prevalence can rise to approximately 40%[2]. Consistent with trends observed in the general population, anemia is a common finding in emergency departments (EDs), where up to one third of patients may be anemic and approximately half present with iron deficiency[3]. Thus, ED physicians frequently manage patients with chronic anemia, although therapeutic approaches are not standardized and specific guidelines are lacking. In the ED setting, red blood cell (RBC) transfusion represents a frequently adopted therapeutic approach, even in hemodynamically stable patients with relatively mild symptoms[3]. However, Patient Blood Management (PBM) strategies focused on anemia aetiology have been associated with reduced transfusions, lower costs, and improved appropriateness of care[4,5].

The aim of this retrospective observational study was to compare outcomes of patients presenting to the ED of the tertiary University Hospital of Verona with moderate-to-severe chronic iron deficiency anemia (IDA), according to referral to a PBM program after discharge. Adult patients presenting between 2021 and 2023 with chronic moderate (Hb 80-100 g/L) or severe anemia (Hb <80 g/L) were included. Iron deficiency was defined by ferritin or transferrin saturation thresholds according to guidelines, or by clinical and laboratory criteria when full assessment was unavailable. Exclusion criteria were hemodynamic instability, active bleeding, pregnancy, or acute coronary syndrome. A PBM group included thirty-six patients referred for internal medicine evaluation and treated with intravenous ferric carboxymaltose within 3 days of discharge, while a matched control group included twenty-eights patients discharged without referral. We evaluated RBC transfusions during the index ED visit, as well as subsequent ED visits and hospitalisations within six months. The two groups were homogeneous in age, sex, and hemoglobin levels; overall mean age was 70 years, 71.9% were female, and 50% had relevant comorbidities such as cancer, CKD, or heart failure. Mean Hb was 77.5 g/L, with a predominance of severe anemia. Most patients were referred by general practitioners following abnormal blood tests. No patient received intravenous iron in the ED; all PBM patients were treated after discharge. The proportion of transfused patients was significantly higher in the control group than in the PBM group (21/28 *vs* 11/36; p<0.001), although the median number of RBC units transfused was 2 in both groups.

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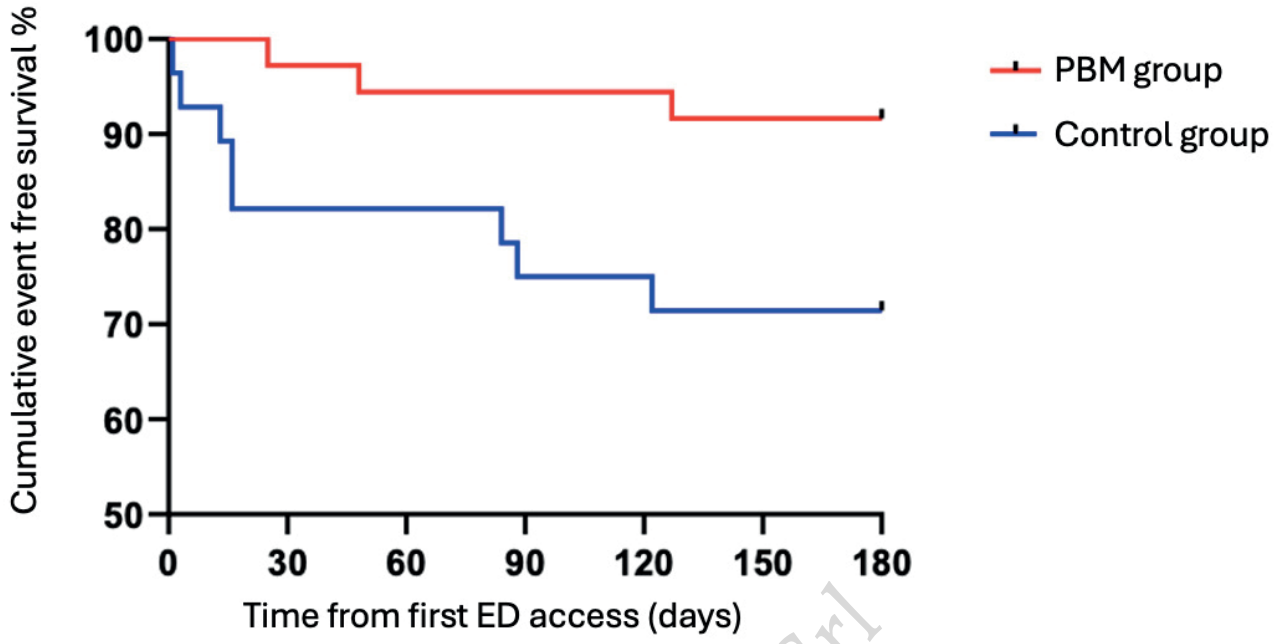


Figure 1 - Kaplan–Meier curves for 6-month event-free survival in the two study groups
ED: Emergency Department.

Within six months, patients in the PBM group had fewer ED visits and hospital admissions related to anemia, with significantly better cumulative event-free survival (p=0.033; **Figure 1**).

Our study suggests that increased awareness of chronic IDA and implementation of PBM strategies in the emergency setting may reduce RBC transfusion rates and improve patient outcomes, encouraging the integration of PBM principles into routine ED practice.

Limitations include retrospective design, small sample size, and lack of intravenous iron administration in the ED. A larger prospective study with early PBM implementation starting in the ED would better define clinical impact.

Authorship contribution

GM and DG designed the study. FC, CP and AM participated to data acquisition. AV analysed the data. GM and FC wrote the manuscript. DG critically revised the manuscript. All Authors approved the final version for publication.

The Authors declare no conflicts of interest.

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