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Letter to the Editor

Letter to the editor: Erythropoietin in ICU patients receiving early red blood cell transfusions: A retrospective study of the impact on transfusion requirements

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The recently published article by Carpentier et al., titled "Erythropoietin in ICU patients receiving early red blood cell transfusions: A retrospective study of the impact on transfusion requirements", offers valuable insights into the potential role of erythropoietin (EPO) in critical care settings. The authors suggest that administering EPO to severely anaemic ICU patients may reduce the need for subsequent red blood cell (RBC) transfusion and possibly improve survival outcomes. However, they rightly emphasise the need for further research into the systematic use of EPO following RBC transfusion in ICU patients [1].

While the study demonstrates methodological rigor, several clinical considerations merit further discussion. The EPO regimen used (20,000 IU of epoetin alfa every 72 h) represents a standard dose, yet higher doses may be necessary in patients with chronic kidney failure to achieve optimal results. The transfusion threshold was set at 8.5 g/dL for most patients, with a higher target of 10 g/dL for trauma patients. Additionally, a substantial number of patients presented with hemorrhagic shock, which limited their eligibility for heparin anticoagulation therapy, as only 74 % received prophylactic anticoagulation and 49 % received therapeutic doses [1].

Several studies have reported an increased risk of cardiovascular disease associated with erythropoietin, including an elevated risk of mortality, myocardial infarction, stroke, and venous thromboembolism. Raising the hemoglobin level above a target threshold of 11 g/dL with epoetin alfa has been shown to increase the risk of cardiovascular events without providing any additional benefit [2,3]. This was described even in the absence of severe cardiovascular or neurological ischemic events, such as those observed in the Carpentier study [1,2]. Trauma patients in the Carpentier study had a transfusion threshold of 10 g/dL. According to Carpentier himself, the median hemoglobin level rose by 1.2 g/dL in the EPO subgroup, potentially exceeding 11 g/dL and thereby increasing the risk of cardiovascular events [1,2].

EPO therapy is associated with potential adverse effects, including severe hypertension [4] and seizures in patients with chronic kidney disease (CKD) [5]. Notably, neither hypertension nor CKD was listed as an exclusion criterion in the Carpentier study [1]. Additionally, the study did not report any adverse events, unlike other studies evaluating EPO therapy [2–4]. This may be due to its retrospective design, which could have limited the documentation of such effects. Nevertheless, it is important to make clinicians aware of these significant potential side effects, particularly in an intensive care setting.

CRediT authorship contribution statement

Priscilla Gillis: Conceptualization, Writing – original draft, Writing – review & editing. **Ilann Oueslati:** Writing – original draft, Writing – review & editing. **Nathan De Lissnyder:** Writing – original draft, Writing – review & editing. **Sydney Blackman:** Writing – original draft, Writing – review & editing. **Oumayma Errais:** Writing – original draft, Writing – review & editing. **Sarah Dahma:** Writing – original draft, Writing – review & editing. **Yasser Benkaddour:** Writing – original draft, Writing – review & editing. **Patrick M. Honore:** Conceptualization, Supervision, Writing – original draft, Writing – review & editing.

Ethics approval and consent to participate

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Declaration of competing interest

The authors declare to have no competing interests.

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