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## Letter to the Editor

### Transfusion and/or Anemia as Risk Factors for Infection in Rectal Surgery: Association or Causality?<sup>☆</sup>



### Transfusión y/o anemia como factores de riesgo de infección en la cirugía de recto: ¿asociación o causalidad?

Dear Editors,

After reading with interest the article by Colás-Ruiz et al.,<sup>1</sup> the interpretation provided of the relationship between blood transfusion (BT) and surgical infection has given us pause.

Although the study analyzes several variables, including some referring to preoperative preparation, it does not analyze whether the treatment administered was done within a multimodal rehabilitation program, which are defined by the RICA guidelines in Spain.<sup>2</sup> In addition, the study does not mention the preoperative evaluation of hemoglobin or anemia (as recommended in the RICA guidelines), despite the well-known association of anemia with an increased risk for perioperative morbidity and mortality,<sup>3</sup> and the fact that hemoglobin levels and iron deficiency are independent risk factors for BT and nosocomial infection.<sup>4</sup> The recently published guidelines for perioperative care in elective colorectal surgery of the ERAS Society<sup>5</sup> recognizes that: “anemia is common in patients requiring colorectal surgery and increases morbidity from all causes.” Therefore, with a high quality of evidence, it is strongly recommended to ‘detect and treat anemia before surgery’ because it is a modifiable risk factor. As for the treatment of preoperative anemia and iron deficiency in colorectal cancer, intravenous iron plays an important role due to its greater effectiveness in the improvement of anemia, with no observed correlation with a higher rate of perioperative infection.<sup>6</sup>

Furthermore, although the study identifies BT as one of the risk factors for surgical site infection, it does not state whether the BT were pre-, intra- or postoperative, nor is the volume transfused reported, even though the dose-dependent relationship of BT and infection is well known.<sup>4</sup> Perioperative BT has a negative impact on the survival of patients with colorectal cancer and is associated with complications such as thrombosis,

infections and tumor recurrence.<sup>3</sup> In addition, the association, not causality, of BT and infection can be inferred by the risk of the reason for BT: the presence of anemia.

BT is one of the 5 most overused medical practices,<sup>7</sup> with great variability and inappropriate use. Based on this, several scientific societies have drafted DO NOT DO recommendations, endorsed by the Spanish Ministry of Health,<sup>8</sup> that include the preoperative evaluation of anemia and avoiding inappropriate BT. Patient Blood Management programs<sup>9</sup> incorporated in ERAS protocols, together with the application of RICA<sup>2</sup> guidelines and DO NOT DO<sup>8</sup> recommendations, are fundamental actions for improvement in colorectal surgery, especially with regards to the evaluation of preoperative anemia<sup>10</sup> and the proper use of transfusion.<sup>7</sup>

#### Conflict of Interests

We declare that we have no conflicts of interests in the writing of this article.

However, in the past, Drs. CJA and JAGE have given talks, moderated roundtables at congresses and conferences or organized courses with grants or funding from Amgen, Jansen, Sandoz, Vifor or Zambon.

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