

## UPPER GASTROINTESTINAL BLEEDING TRANSFUSION STRATEGIES

A low (restricted) haemoglobin threshold level for red-cell transfusion might be safer and more effective than a liberal threshold for patients with acute upper gastrointestinal bleeding. This finding comes from a randomized controlled trial recently published in the *New England Journal of Medicine*.

Acute upper gastrointestinal bleeding is an emergency condition associated with high morbidity and mortality. Red-cell transfusion is commonly indicated to improve the delivery of oxygen to tissues; however, the haemoglobin threshold for transfusion in these patients is controversial.

Villanueva and colleagues conducted a single-centre, randomized controlled trial to investigate the safety and efficacy of a restrictive-transfusion strategy compared with a liberal-transfusion strategy. 921 patients were included in the study: 461 were randomly assigned to a restrictive strategy (transfusion when the haemoglobin level fell below 70 g/l) and the other 460 patients were assigned to a liberal strategy (transfusion when the haemoglobin level fell below 90 g/l). Baseline characteristics were similar in the two groups.

The primary outcome measure was mortality at 45 days, which was found to be significantly lower in the restrictive-strategy group than in the liberal-strategy group (5% versus 9%, respectively,  $P=0.02$ ). Furthermore, the risk of further bleeding, length of hospital stay, the need for rescue therapy, the overall rate of complications and the rate of serious adverse events were also all significantly reduced in the restrictive-strategy group compared with the liberal-strategy group.

These findings are in line with results from trials investigating transfusion strategies in other critically ill patients. However, the study by Villanueva and co-workers is particularly important for guiding clinical practice specifically in patients with upper gastrointestinal bleeding. The researchers conclude that in patients with acute upper gastrointestinal bleeding, it is safe and effective to not perform a blood transfusion until haemoglobin levels fall below 70 g/l. This study also supports future investigation into optimal transfusion policies for platelets and plasma in acute gastrointestinal bleeding.

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