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Transfusion Strategies for Acute Upper Gastrointestinal Bleeding

Càndid Villanueva, M.D., Alan Colomo, M.D., Alba Bosch, M.D., Mar Concepción, M.D., Virginia Hernandez-Gea, M.D., Carles Aracil, M.D., Isabel Graupera, M.D., María Poca, M.D., Cristina Alvarez-Urturi, M.D., Jordi Gordillo, M.D., Carlos Guarner-Argente, M.D., Miquel Santaló, M.D., Eduardo Muñoz, M.D., and Carlos Guarner, M.D.

ABSTRACT

BACKGROUND

The hemoglobin threshold for transfusion of red cells in patients with acute gastrointestinal bleeding is controversial. We compared the efficacy and safety of a restrictive transfusion strategy with those of a liberal transfusion strategy.

METHODS

We enrolled 921 patients with severe acute upper gastrointestinal bleeding and randomly assigned 461 of them to a restrictive strategy (transfusion when the hemoglobin level fell below 7 g per deciliter) and 460 to a liberal strategy (transfusion when the hemoglobin fell below 9 g per deciliter). Randomization was stratified according to the presence or absence of liver cirrhosis.

RESULTS

A total of 225 patients assigned to the restrictive strategy (51%), as compared with 65 assigned to the liberal strategy (15%), did not receive transfusions ($P < 0.001$). The probability of survival at 6 weeks was higher in the restrictive-strategy group than in the liberal-strategy group (95% vs. 91%; hazard ratio for death with restrictive strategy, 0.55; 95% confidence interval [CI], 0.33 to 0.92; $P = 0.02$). Further bleeding occurred in 10% of the patients in the restrictive-strategy group as compared with 16% of the patients in the liberal-strategy group ($P = 0.01$), and adverse events occurred in 40% as compared with 48% ($P = 0.02$). The probability of survival was slightly higher with the restrictive strategy than with the liberal strategy in the subgroup of patients who had bleeding associated with a peptic ulcer (hazard ratio, 0.70; 95% CI, 0.26 to 1.25) and was significantly higher in the subgroup of patients with cirrhosis and Child-Pugh class A or B disease (hazard ratio, 0.30; 95% CI, 0.11 to 0.85), but not in those with cirrhosis and Child-Pugh class C disease (hazard ratio, 1.04; 95% CI, 0.45 to 2.37). Within the first 5 days, the portal-pressure gradient increased significantly in patients assigned to the liberal strategy ($P = 0.03$) but not in those assigned to the restrictive strategy.

CONCLUSIONS

As compared with a liberal transfusion strategy, a restrictive strategy significantly improved outcomes in patients with acute upper gastrointestinal bleeding. (Funded by Fundació Investigació Sant Pau; ClinicalTrials.gov number, NCT00414713.)

From the Gastrointestinal Bleeding Unit, Department of Gastroenterology (C.V., A.C., M.C., V.H.-G., C.A., I.G., M.P., C.A.-U., J.G., C.G.-A., C.G.), Blood and Tissue Bank (A.B., E.M.), and the Semi-Critical Unit (M.S.), Hospital de Sant Pau, Autonomous University, and Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (C.V., A.C., I.G., C.G.) — all in Barcelona. Address reprint requests to Dr. Villanueva at Servei de Patologia Digestiva, Hospital de la Santa Creu i Sant Pau, Mas Casanovas, 90. 08025 Barcelona, Spain, or at cvillanueva@santpau.cat.

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