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ORIGINAL ARTICLE

Improved survival of cirrhotic patients with variceal bleeding over the decade 2000—2010

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Summary
Background and objective: Advances in the management of variceal bleeding (VB) have been highlighted recently. We aimed at assessing whether changing the management of VB has improved the outcome (mortality and rebleeding rates).
Methods: The files of two cohorts ($n=57$, 2000—2001 and $n=64$, 2008—2009) of patients referred to our university center were reviewed after a cross-searching using two coding systems. Data were recorded during the six months after VB.
Results: As compared to 2000—2001, more use of general anesthesia (25.4% vs. 11.1%; $P=0.049$), band ligations (96.1% vs. 71.4%; $P=0.001$), octreotide (95.3% vs. 80.7%; $P=0.012$) and antibiotic prophylaxis (93.8% vs. 82.5%; $P=0.09$) were performed in 2008—2009, whereas the number of red-cell units transfused during the hospital stay (4.3 ± 3.2 vs. 7.1 ± 5.7; $P=0.005$) decreased. Surprisingly, more than 60% of patients reached the emergency department from home without medical assistance in both periods. In 2008—2009, patients had more comorbidities and no patients underwent early-TIPS but the 6-week mortality rate (24.6% vs.10.9%; $P=0.048$) was lower. The 6-week mortality was associated with high MELD score

Abbreviations: CCAM, *classification commune des actes médicaux*; CdAM, *catalogue des actes médicaux*; CRP, C-reactive protein; ICD, International Classification of Diseases; MDRD, modification of diet in renal disease; MELD, model of end stage liver disease; TIPS, transjugular intrahepatic portosystemic shunt; UGI, upper gastrointestinal; VB, variceal bleeding.

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(HR = 1.13; 95%CI: 1.08—1.18) and hypovolemic shock (HR = 5.36; 95%CI: 1.96—14.67) at admission. In multivariate analysis adjusted on MELD and comorbidities, the 2008—2009 period (HR: 0.42; 95%CI: 0.20—0.87; $P = 0.02$) was associated with a lower 6-month mortality rate.
Conclusions: Although cirrhotic patients with VB had more comorbidities in 2008—2009 and received no early-TIPS, their prognosis has improved during this last decade concomitantly to a more intensive care and a lower transfusion strategy.

Introduction

Until a decade ago, cirrhosis was considered as a progressive and inevitable terminal disease, heralded by the development of ascites, jaundice, encephalopathy and variceal bleeding. Patients presenting with variceal bleeding (VB) have been associated with the highest 1-year mortality rate of 57% [1]. The improvement of hospital care in decompensated cirrhotic patients has led to the significant reduction in the mortality rate over the last decade [2], and one of the most spectacular advances in the field of portal hypertension was the improvement of the management of VB. In a French retrospective study published ten years ago, a 3-fold decrease in the in-hospital mortality observed between 1980 and 2000 in cirrhotic patients with VB was attributed to a more general use of pharmalogical and endoscopic therapies together with short-term antibioprophylaxis [3]. Since the publication of this paper, recent advances in the therapeutic strategies of VB have been highlighted. The use of early transjugular intrahepatic portosystemic shunts (TIPS) in patients with high-risk of failing standard therapy and the use of a restrictive red-cell transfusion strategy have been shown to decrease the mortality in such patients [4,5]. Early TIPS, however, is not widely available and its systematic use in all centers is still debated, although recommended by the Baveno V workshop [6]. The benefit of early-TIPS must still be evaluated in competition with other medical measures susceptible to improve survival. We thus compared two cohorts of patients referred to a single center to investigate whether survival still improved over the last decade despite the non-use of early-TIPS. The prognosis of acute VB and its determinants were fully investigated.

Patients and methods

Study cohorts

This retrospective study was conducted in the 1291-bed University Hospital of Besançon and compared two cohorts (first cohort: January 2000 to December 2001; second cohort: January 2008 to December 2009) of patients admitted for acute upper gastrointestinal (UGI) bleeding or who bled while being hospitalized for another reason. The files of all patients hospitalized during these two periods with a discharge diagnosis of cirrhosis and acute UGI bleeding were reviewed. All patients who met the following criteria were considered:

- diagnosis of cirrhosis, based on liver histology or on clinical, laboratory or ultrasonographic findings;
- hematemesis and/or melaena at admission;
- active VB on endoscopy (see Definitions section below) or non-bleeding varices with no other potential source of gastrointestinal bleeding.

For the purpose of this study, only VBs were considered. Consequently, patients with portal hypertensive gastropathy, ulcers (whatever the origin), Mallory-Weiss syndrome or sclerotherapy/banding-induced ulcerations were excluded from the analysis.

Data collection

Based on the 10th edition of International Classification of Diseases (ICD-10), our Medical Information Department provided the list of all patients with a diagnosis of ''cirrhosis'' or of ''chronic hepatitis'' and with acute UGI hemorrhage hospitalized in our Hepatology Department or in the Intensive Care Unit Department, during the two periods.

To ensure that all files corresponding to these diagnoses were optimally found, we also reviewed the files of patients who have performed a therapeutic upper endoscopy for hemorrhage. To do so, we used the French *catalogue des actes médicaux* (CdAM) for the first period, and the *classification commune des actes médicaux* (CCAM) (this medical classification for the clinical procedures succeeded to CdAM in 2005) for the second period.

The medical records of eligible patients were reviewed to obtain demographic, clinical and biological data, endoscopic procedures and follow up data until six months after the first episode of UGI bleeding. Cases of undetermined vital status at the end of the follow-up were resolved by questioning the family physicians or asking about the death certificate at the town hall. Comorbidities were evaluated by the Charlson Index [7], and we calculated the modification of diet in renal disease (MDRD) formula to estimate the glomerular filtration rate [8].

Definitions

Active bleeding on admission was defined as objective signs of red or black hematemesis/aspiration on the nasogastric tube seen, or spurting or oozing bleeding at endoscopy.

Hypovolemic shock was defined as a systolic pressure below 80 mmHg with signs of hypoperfusion [3].