Scientific Research Process

Name of Journal: World Journal of Gastroenterology

ESPS Manuscript NO: 35383

Manuscript Type: ORIGINAL ARTICLE/PROSPECTIVE STUDY

Title: Scoring systems for peptic ulcer bleeding: Which one to use?

Authors: Ivan Budimir, Sanja Stojsavljević, Neven Baršić, Alen Bišćanin, Gorana Mirošević, Sven Bohnec, Lora Stanka Kirigin, Tajana Pavić, Neven Ljubičić.

Correspondence to: Sanja Stojsavljević, MD, Division of Gastroenterology, Department of Internal Medicine, «Sestre Milosrdnice» University Hospital Center, Zagreb 10000, Vinogradska ul. 29, Croatia, e-mail : sanja.stojsavljevic@kbcsm.hr Fax: 0038513787448 Telephone: 0038513787178

1 What did this study explore?

This is a prospective single-center study, with a sample size of more than 1000 patients, that compared the scoring system of the Glasgow Blatchford score (GBS), Rockall score (RS) and Baylor bleeding score (BBS) in predicting clinical outcomes and need for interventions in patients with bleeding peptic ulcers.

2 How did the authors perform all experiments?

The following data were collected for each patient: demographic data, history of ulcer or liver disease, coexisting and past illnesses, medication use, clinical characteristics of the bleeding episode, laboratory results, endoscopic diagnosis including stigmata of ongoing or recent hemorrhage, endoscopic intervention, medical treatment, rebleeding, surgical therapy, duration of hospitalization and cause of death. The grading of overall health and co-morbidity was performed according to the American Society of Anesthesiology (ASA) classification and stigmata of hemorrhage were defined according to the Forrest classification. All patients diagonsed with peptic ulcer bleeding and high risk stigmata underwent intial haemostasis (injection of dilute epinephrine into and around the bleeding point, positioning of clips or thermal coagulation , or both, but never epinephrine alone). Two biopsy specimens were obtained from the gastric antrum and body in all patients and the presence of Helicobacter pylori (H. Pylori) infection was assessed by histopatological examination of the specimens using hematoxylin-eosin (HE) stain.

All patients with negative histology for H. Pylori at index endoscopy had a control endoscopy with repeating biopsy samples, or urea breath test (UBT), performed 2 weeks after IPP treatment was discontinued. Patients, in whom the described protocol was not followed, were excluded from the study about H. Pylori infection. In all patients with gastric ulcer in whom recurrent bleeding was not observed, control endoscopy was performed four to five days after initial hemostasis and biopsy specimens were obtained from the margins and base of gastric ulcers to exclude malignancy. Control endoscopy with histology had been planned to be performed in all patients with gastric ulcer.

3 How did the authors process all experimental data?

Documented clinical outcomes were need for hospital-based intervention or 30-day mortality, 30-day rebleeding, 30-day mortality and interventions (transfer to the Department of Surgery and the need for blood transfusion). The collected data was used to calculate the GBS score, as well as the pre-endoscopic RS and pre-endoscopic BBS for each patient presenting with UGIB. The post-endoscopic RS and BBS was calculated if bleeding from gastric, duodenal or gastro-enteric ulcers was endoscopically diagnosed. Methods for calculating the GBS, RS and BBS were as previously described. Pre-endoscopic and post-endoscopic scores were separately evaluated. The Mann-Whitney U-test and Kruskal-Wallis analysis of variance test were used to analyze differences in quantitative data. The discriminative ability of the scoring systems to predict outcomes was evaluated by receiver operating characteristics curves (ROC) with 95% confidence intervals. The areas under ROC curves (AUROCs) were compared by using the method of Delong et al. for the calculation of the Standard Error of the Area Under the Curve (AUC) and of the difference between two AUCs. The optimal thresholds of the GBS, RS and BBS for the prediction of rebleeding, death, need for blood transfusion and surgical intervention were identified as the threshold associated with the highest Youden index.

4 How did the authors deal with the pre-study hypothesis?

Since this was a prospective study, the aim was to compare the Glasgow Blatchford score (GBS), Rockall score (RS) and Baylor bleeding score (BBS) in predicting clinical outcomes and the need for interventions in patients with bleeding peptic ulcers.

5 What are the novel findings of this study?

By comparing the ROC curves of the before mentioned pre-endoscopic scores, the RS proved to be the best score for predicting lethal outcome. The post-endoscopic RS was also better than the post-endoscopic BBS in predicting lethal outcome in patients with PUB. On the other hand, among the three pre-endoscopic scores, the GBS best predicted need for hospital-based intervention or 30-day mortality, rebleeding, need for blood transfusion and surgical intervention.