

Answer to reviewer 1:

Dear reviewer,

Thank you for your excellent review. We highly appreciate your time and effort that you dedicated to our study, and we are grateful for the interesting comments and valuable suggestions.

In the revised manuscript, we have incorporated most of the comments made and the changes are highlighted in red.

Review Date: 2023-04-25 16:13

Specific Comments To Authors: In the present retrospective study Morarasu et al compared Glasgow Blatchford score (GBS) to pre-endoscopic Rockall (PERS), ABC and AIM65 as prognostic factors in gastrointestinal bleeding to predict mortality, hospital stay and need of surgical interventions. Main comments:

1) The main problem of the design of this study is that such scores have been developed for non variceal bleeding. Variceal bleeding often underlies a cirrhosis, which was indeed less common in the non variceal group, therefore there is relevant heterogeneity between variceal and non variceal group. Therefore I suggest to remove all the analysis of the variceal bleeding, which could be used for another publication and compared to other specific scores, such as MELD or Child Pugh.

Thank you for this suggestion. Indeed, such scores have been primarily used in patients with non-variceal bleeding, but other investigators have suggested their use in variceal bleeding population (Yang L, Sun R, Wei N, Chen H. Systematic review and meta-analysis of risk scores in prediction for the clinical outcomes in patients with acute variceal bleeding. Ann Med. 2021 Dec;53(1):1806-1815). Other investigators have analysed the aforementioned scores on mixed population (with both variceal and non-variceal bleeding). I do agree that I should compare these scores with the other specific ones and I have included the following comment in the discussion section:

“Other reports comparing different other specific scores used in patients with liver cirrhosis (MELD-model for end-stage liver disease, APACHE II-acute physiology and chronic health evaluation II, qSOFA-quick sepsis related organ failure assessment) confirmed higher accuracy of AIMS65 in predicting in-hospital mortality<sup>[1]</sup>. Similar predictive power for in-hospital mortality of AIMS65 score, Child-Pugh score (CTP) and MELD score was found in a metanalysis performed on a variceal bleeding population”

2) No patient required angiography rather than surgery?

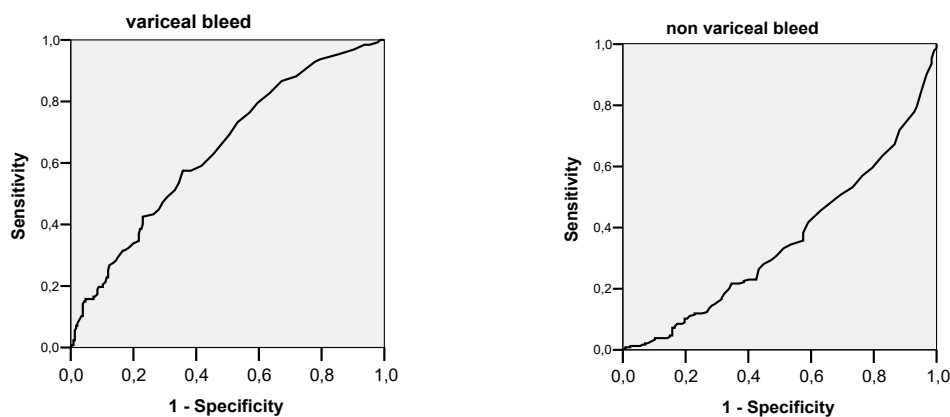
Yes, there were some patients requiring angiography rather than surgery, however, we do not have on call service for such intervention. However, most cases which underwent surgery were due to perforated ulcer or actively bleeding gastric cancer which failed endoscopic treatment.

### 3) Were for endoscopic interventions OVESCO clips or haemostatic powders used?

We rarely use these measures to control upper GI bleeding and they are seldom available, hence they were not used in the analysed cohort.

### 4) Considering the good performance of lactate, Authors could add ROC curve and cutoff estimation for the outcomes they investigated.

We have included the following information in the manuscript and argued the role of lactate according to these findings:



**Figure 7.** ROC Curve. Lactate is a good predictor of variceal bleed compared to non-variceal bleeding group.

ROC curve showed a cut-off lactate value of 2.05, with a sensitivity of 64.3% and a specificity of 53.2% represents a good predictor of variceal bleed.

Venous Lactate	<i>Cut off</i>	Area	Std. error	Asymptotic Sig.	Asymptotic 95% Confidence Interval
variceal bleed	2.05	0.643	0.030	0.001	0.585-0.701
non variceal bleed	2.45	0.357	0.030	0.001	0.299-0.415

**Table 11.** Analysis of AUROC, cut-off value, 95% confidence interval of venous lactate in variceal and non-variceal bleed

We have included the following comments:

Discussion section: In variceal bleeding patients, levels of lactate might be higher due to associated liver insufficiency, large volume of bleeding and subsequent hypovolemia<sup>[13,35]</sup>. We support these findings, as for a cut-off value of 2.05 with a sensitivity of 64.3% and a specificity of 53.2%, lactate proved to be a good predictor of variceal bleeding. On the other hand, in patients with less dramatic clinical presentation, lactate could be used as a tool for early detection of GI bleeding<sup>[36,37]</sup>. In our cohort it was an independent predictor of mortality and intervention (endoscopy and surgery).

Conclusion: Lactate is an independent predictor for in-patient mortality at a cut-off value of 2 in variceal bleeding population. It can be used in conjunction to AIMS65 and GBS score to predict in-patient mortality and intervention.

Answer to reviewer 2:

Dear reviewer,

Thank you for your review. We highly appreciate your time and effort that you dedicated to our study, and we are grateful for the valuable suggestions.

In the revised manuscript, we have incorporated the comment made and the changes are highlighted in red.

Review Date:

2023-04-16 11:31

Specific Comments To Authors: Title: appropriate to define the content of the article. Key words: 6, appropriate. Abstract: 270 words, structured, informative. Core tip: 74 words, appropriate. Introduction: 436 words, the reader is acquainted with known facts about upper GI bleeding, risk assesment of patients and different scoring systems. Material and methods: 611 words, the authors adequately explain the methodology of the study and statistical analysis. Results: 625 words, the authors present a wealth of data obtained through advanced statistical analysis. The results are also presented in 6 tables. Discussion: 1564 words, the authors spend many words on the interpretation of the obtained statistical data, compare with the results of studies in the past and do not forget to add a proposal to enrich some scoring systems with additional parameters. I really miss the consideration of the authors about the fact that different scoring systems cannot replace the clinical evaluation of patients and the prediction of complications that are common in bleeding patients. Conclusion: 73 words, the authors conclude that for each of the questions they raised (in-hospital mortality, type of intervention and length of admission) would use another, suitable scoring system -

I cannot agree with this conclusion. References: 38, contemporary and influential journals from this field. Conflict of interest: no conflict declared. Financial support: the authors deny financial support. Institutional review board statement: the study was approved by the Hospital's Ethics Committee, approval number 39/30.03.2022. Informed consent statement: patients were not required to give informed consent to the study because the analysis used anonymous clinical data that were obtained after each patient agreed to treatment by written consent. Opinion of the reviewer: The article deals with an interesting topic in the interdisciplinary field of gastroenterology/emergency medicine medicine/surgery. Unfortunately, the contribution does not bring any novelty in this field.

We have included the following comment in discussion section:

Also, irrespective of their statistical power, risk scores are tools which cannot replace appropriate clinical evaluation, decision making process and the need for an individualised approach of each patient.

Answer to reviewer 3:

Dear reviewer,

Thank you for your excellent review. We highly appreciate your time and effort that you dedicated to our study, and we are grateful for the interesting comments and valuable suggestions.

In the revised manuscript, we have incorporated most of the comments made and the changes are highlighted in red. Please note that the other reviewer

April 10th, 2023

Manuscript ID: 84817

MS. Title: AIMS65 and ABC risk scores outperform Glasgow-Blatchford and pre-endoscopic Rockall score in patients with upper gastrointestinal bleeding

Authors: Bianca Codrina Morarasu, et al.

The aim of this study is to compare the performance of pre-endoscopic risk scores in predicting the following primary outcomes: in-hospital mortality, intervention (endoscopic or surgical) and length of admission in patients with upper gastrointestinal (GI) bleeding. Key findings of this study were the retrospective single-centered study included 363 patients showed that AIMS65 and ABC score are more accurate in predicting in-patient mortality for

variceal upper GI bleeding and non-variceal upper GI bleeding, respectively, while pre-endoscopic Rockall score (PERS) and Glasgow-Blatchford score (GBS) should be used to determine need for endoscopic and surgical intervention, respectively.

There are some major comments to address as follows.

1. Regarding to patient management, there are several information needed to be clarified and discussed as follows.

a. For timing of endoscopy performed for patients with upper GI bleeding (UGIB) within 24 hours, it should be mentioned that its severity which need different urgency of endoscopic treatment, should be clarified and add discussion about the appropriate timing of endoscopy which strongly affect patient's outcomes.

Thank you for this valuable observation. I have specified the time frame of our endoscopic management depending on type of bleeding, "patient management" section:

Endoscopy was performed within 24 hours of ED arrival in all patients included in analysis. Forrest classification was used to describe peptic ulcer disease, with Baveno and Sarin's classification for gastroesophageal varices. Those with suspected variceal bleeding had endoscopic evaluation and management within 6 to 12 hours, after initial appropriate fluid resuscitation. In those with non-variceal upper gastrointestinal bleeding, endoscopy was performed within the first 12 to 24 hours with no patient being postponed more than 24 hours. However, we would perform the intervention earlier guided by the patient's clinical status and the clinician's preference.

We have also included the following comment in the discussion section:

This is particularly important as the latter score includes endoscopic findings which plays a major role in the diagnosis and treatment of such patients. All patients included in our cohort had been investigated endoscopically within first 24 hours of presentation. As previously mentioned, timing of endoscopy is of paramount importance in patients with high risk of further bleeding and mortality and it should be performed within 12 hours, especially in patients with variceal bleed. On the other hand, very early endoscopy (less than 6 hours) does not reduce mortality or further bleeding.

b. For blood transfusion, it should be according to recent guidelines of UGIB. as ACG 2021 or ESGE 2021 or depending on patient's condition.

Indeed, we follow the 2021 ESGE guidelines and I have made clarifications in this section as suggested, with the following comment, "patient management" section:

Hemodynamically stable patients with a Hb  $\leq 7$  g/dL had at least one unit of red blood cell concentrate transfused, with more than one unit in those with severely low Hb. A higher Hb threshold (Hb  $\leq 8$  g/dL) was used for patients with associated cardiovascular disease. Post-transfusion target Hb was between 7-9 g/dL

c. Indication of hospital admission should be clarified and add more details due to primary outcome as well as length of hospital stay.

I have included the following comment in the manuscript:

Need for admission was established by the gastroenterology and general surgery teams on-call guided by the patient's clinical status, comorbidities, and high risk of rebleeding and mortality (GBS score  $\geq 2$  in non-variceal patients and all patients with stigmata of variceal bleeding irrespective of risk score).

d. Comorbidities should be more specified about hepatocellular carcinoma due to increased risk of variceal bleeding.

Thank you, I have added the number of patients with a diagnosis of hepatocellular carcinoma in Table No. 1, and the following comment in "results":

Liver cirrhosis is the most frequent associated comorbidity in the entire group (n=139, 38.3%), and 2.5% (n=9) of patients had associated hepatocarcinoma (Table 1).

Active malignancy	25 (6.9%)	12 (9.4%)	13 (5.5%)	0.166
Hepatocarcinoma	9 (2.5%)	8 (6.2%)	1 (0.5%)	

e. Comorbidities of patients with antiplatelet, anticoagulant, warfarin or DOAC should be mentioned in detail due to increased risk of upper GI bleeding.

We have included the following information in the first table and in the main text:

A small proportion of our patients had chronic treatment with antiplatelets (n=36, 9.9%) or oral anticoagulation (n=32, 8.9%).

<b>Antiplatelets</b>	36 (9.9%)			0.002
Aspirin	22 (6.1%)	1 (0.8%)	21 (8.9%)	
Clopidogrel	7 (1.9%)	0 (0%)	7 (3.0%)	
DAPT (Aspirin Clopidogrel or Aspirin Ticagrelor)	6 (1.7%)	1 (0.8%)	5 (2.1%)	
Ticagrelor	1 (0.3%)	0 (0%)	1 (0.4%)	
No treatment	327 (90.1%)	125 (98.4%)	202 (85.6%)	
<b>Anticoagulation</b>	32 (8.9%)			0.003
DOAC	22 (6.1%)	0 (0%)	22 (9.3%)	
VKA	10 (2.8%)	3 (2.4%)	7 (3.0%)	
No treatment	331 (91.2%)	124 (97.6%)	207 (87.7%)	

f. Endoscopic and surgical treatment should be clarified according to type of intervention to stop bleeding.

I have included the following information in the manuscript:

Endoscopic treatment was performed depending on the cause of bleeding. For non-variceal upper GI bleed there was a combined approach with injection therapy (dilute epinephrine) and mechanic therapy (thermal coagulation or haemostatic clip) for FIa,FIb and FIIa, with clot removal in FIIf lesions. In variceal bleed, endoscopic ligation was the main approach. Surgical treatment was performed in cases where endoscopic treatment failed, such as actively bleeding malignant lesion, vascular fistula, or in patients with actively bleeding perforated ulcer.

2. For results, logistic regression analysis of each predictor of outcomes including each pre-endoscopic score should be analyzed to evaluate predictors of each outcome before doing AUROC curves.

We have included linear regression analysis of each pre-endoscopic score against each determined outcome, as follows:

We have performed linear regression analysis of each pre-endoscopic score against each determined outcome. AIMS65 score is influenced by the following variables: mortality, endoscopic and surgical intervention (Model 4:  $R=0.316$ ;  $p=0.007$ ), as well as length of stay, with an Y point  $3.959 - 0.961 \text{ Death} - 0.148 \text{ Endoscopy} + 0.057 \text{ Surgery} - 0.291$  days (Table 3). PERS score is influenced by mortality and endoscopic intervention (Model 2:  $R=0.243$ ;  $p=0.009$ ), with an Y point  $6.227 - 1.961 \text{ Death} - 0.512 \text{ Endoscopy}$  (Table 4). ABC score is influenced by mortality and endoscopic intervention (Model 2:  $R=0.324$ ;  $p=0.006$ ), with an Y point  $11.161 - 2.466 \text{ Death} - 0.815 \text{ Endoscopy}$  (Table 5). GBS score is influenced by mortality and endoscopic intervention (Model 2:  $R=0.241$ ;  $p=0.007$ ), with an Y point  $18.557 - 2.231 \text{ Death} - 1.127 \text{ Endoscopy}$  (Table 6).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.261(a)	0.068	0.065	0.994	0.068	260.305	1	361	0.000
2	0.281(b)	0.079	0.074	0.989	0.011	40.320	1	360	0.038
3	0.286(c)	0.082	0.074	0.989	0.003	10.010	1	359	0.316
4	0.316(d)	0.100	0.090	0.981	0.018	70.290	1	358	0.007

**Table 3.** Linear regression analysis of AIMS65 score against each determined outcome

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.202(a)	0.041	0.038	10.588	0.041	150.411	1	361	0.000
2	0.243(b)	0.059	0.054	10.575	0.018	60.987	1	360	0.009
3	0.248(c)	0.062	0.054	10.575	0.002	0.941	1	359	0.333
4	0.260(d)	0.068	0.057	10.572	0.006	20.359	1	358	0.125

**Table 4.** Linear regression analysis of PERS score against each determined outcome

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.294(a)	0.087	0.084	20.435	0.087	340.206	1	361	0.000
2	0.324(b)	0.105	0.100	20.413	0.019	70.543	1	360	0.006
3	0.329(c)	0.108	0.101	20.413	0.003	10.241	1	359	0.266
4	0.334(d)	0.111	0.101	20.412	0.003	10.183	1	358	0.277

**Table 5.** Linear regression analysis of ABC score against each determined outcome

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.198(a)	0.039	0.036	30.434	0.039	140.659	1	361	0.000
2	0.241(b)	0.058	0.053	30.405	0.019	70.250	1	360	0.007
3	0.256(c)	0.065	0.058	30.396	0.007	20.873	1	359	0.091
4	0.273(d)	0.075	0.064	30.384	0.009	30.534	1	358	0.061

**Table 6.** Linear regression analysis of GBS score against each determined outcome

3. For discussion and conclusion, for practically used and convenience as pre-endoscopic scoring system which had acceptable performance to predict mortality, the best scoring system should be done for both variceal and non-variceal bleeding with acceptable sensitivity and specificity of cut-off value and acceptable AUROC.

I have included the following comment in the results section:

We have determined the best scoring system for in-patient mortality in the included population for both variceal and non-variceal bleeding. ABC showed the highest AUROC, 0.770 (figure 4), as being the best predictor for in-patient mortality in the



entire population, at a cut-off value of 5.5 with a sensitivity of 88.2% and a specificity of 59.6% (IC95%: 0.700-0.840;  $p=0.001$ ) (table 8).

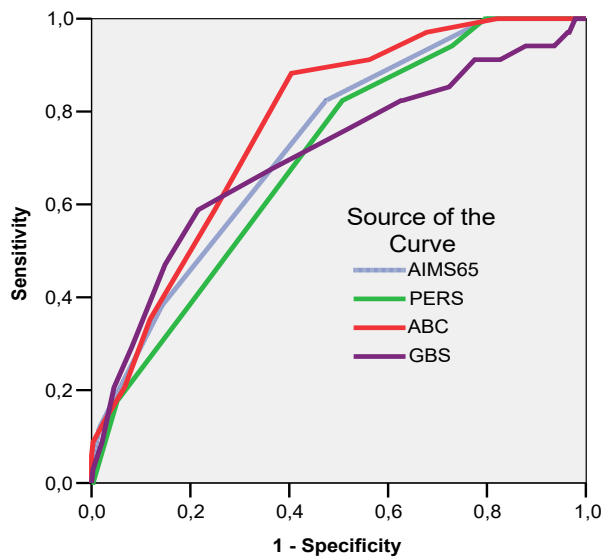


Figure 4. ROC curve. AIMS65, PERS, ABC and GBS predictors of in-patient mortality in the variceal and non-variceal bleeding group

Scores	<i>Cut off</i>	Sensitivity	Specificity	Area	Std. error	Asymptotic Sig.	Asymptotic 95% Confidence Interval
AIMS-65	1.50	82.4	52.6	0.730	0.041	0.001	0.650-0.809
PERS	3.50	82.4	49.2	0.696	0.042	0.001	0.615-0.778
ABC	5.50	88.2	59.6	0.770	0.036	0.001	0.700-0.840
GBS	12.50	76.5	47.7	0.704	0.052	0.001	0.602-0.805

Table 8. Analysis of AUROC, cut-off value, 95% confidence interval for in-patient mortality in mixed variceal and non-variceal bleeding population

There are some minor comments to address as follows.

1. Explain why include abdominal pain as symptoms of presentation.

We have included abdominal pain as in most patients it was as an additional symptom next to hematemesis and melena. However, some of our patients presented with perforated actively bleeding duodenal ulcer and although there were limited numbers of such cases, abdominal pain was the main symptoms.

2. Source of GI bleeding should be more in detail in both result and tables of baseline characteristics.

Gastric/ duodenal ulcer was the main cause of GI bleeding (n=151, 41.6%), followed by oesophageal varices (n=115, 31.7%).

Source of GI bleeding				
Ulcerative and erosive lesions				0.001
Severe/erosive esophagitis	25 (6.9%)	0 (0%)	25 (10.6%)	
Severe/erosive gastritis/ duodenitis	27 (7.4%)	0 (0%)	27 (11.4%)	
Gastric/ duodenal ulcer	151 (41.6%)	0 (0%)	151 (64%)	
Vascular lesions (angiodysplasia)	6 (1.7%)	0 (0%)	6 (2.5%)	
Mass lesions	12 (3.3%)	0 (0%)	12 (5%)	
Traumatic lesions (Mallory Weiss tear)	9 (2.4%)	0 (0%)	9 (3.8%)	
Lesion unidentified/ Dieulafoy	6 (1.6%)	0 (0%)	6 (2.7%)	
Oesophageal varices	115 (31.7%)	115 (90.5%)	0 (0%)	0.003
Gastric varices	12 (3.3%)	12 (9.5%)	0 (0%)	
Injection therapy	29 (8.0%)	1 (0.8%)	28 (11.9%)	0.001
Mechanical endoscopic therapy	59 (16.3%)	50 (39.4%)	9 (3.8%)	0.001
Surgical interventions	9 (2.5%)	0 (0%)	9 (3.8%)	0.026

3. It should be more details about endoscopic treatment with number and percentage of patients. Numbers of successful or failures of endoscopic treatment should be clarified in detail.

We have included the following information in table 1 and in the main text:

Most patients in variceal bleeding group required mechanical endoscopic therapy with band ligation (n=48, 13.2%) and only 2 patients (0.6%) had variceal sclerotherapy. In the non-variceal bleeding group, dual therapy with thermal anticoagulation and local administration of dilute Adrenaline was the main type of endoscopic intervention (n=29, 8.0%). Failed endoscopy was recorded in approximately 4.7% (n=17) of patients. Only 9 patients in the non-variceal group required surgical intervention, in most cases due to actively bleeding perforated duodenal ulcer, inability to achieve local haemostasis in diffuse bleeding induced by malignancy or presence of fistulas.

Intervention
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Injection therapy (dilute epinephrine) with thermal coagulation	29 (8.0%)	0 (0.0%)	28 (11.9%)	0.001
Mechanical endoscopic therapy	59 (16.3%)	50 (39.4%)	9 (3.8%)	0.001
Haemostatic clip	9 (2.5%)	0 (0%)	9 (3.8%)	
Variceal ligation	48 (13.2%)	48 (37.7%)	0 (0%)	
Variceal sclerotherapy	2 (0.6%)	2 (1.6%)	0 (0%)	
Failed endoscopic therapy	17 (4.7%)	9 (7%)	8 (3.4%)	0.001
Surgical interventions	9 (2.5%)	0 (0%)	9 (3.8%)	0.026

4. Explain why exclude sepsis, metformin and severe trauma. These groups of patients should be analyzed about lactate by doing subgroup analysis.

The aforementioned conditions are causes of increased lactate level, irrespective of upper GI bleeding. Hence, we considered it as a confounding factor which may cause an overestimation of the determined outcomes.

5. All symptoms of presentation, comorbidities and treatment should be given in numbers and percentage of patients.

Thank you. I have added this information in the manuscript.

6. Blood transfusion should be more in detail including RBC, platelet, FFP, cryoprecipitate transfusion.

Hemodynamically stable patients with a Hb  $\leq$  7 g/dL had at least one unit of red blood cell concentrate transfused, with more than one unit in those with severely low Hb. A higher Hb threshold (Hb  $\leq$  8 g/dL) was used for patients with associated cardiovascular disease. Post-transfusion target Hb was between 7-9 g/dL. In case of major transfusion protocol, severe liver disease, drug-induced coagulopathy with active bleeding, patients would receive both red cell concentrate and fresh frozen plasma.

7. In hospital death should be more in detail about upper GI bleeding related or other causes.

We had a total of 34 in-hospital deaths among the patients included. We have included this comment in the main text:

The direct cause of death was hypovolaemic shock secondary to upper GI bleeding (in most cases variceal). There were several cases of perforated duodenal ulcer which required emergency surgery, but with poor outcome. One patient developed ventilator associated pneumonia, and another one, acute myocardial infarction, both of them, however in context of the patient presenting with major GI bleed.

Hence, we consider that all deaths were GI bleeding related, indeed in some patients with multiple comorbidities and poor resources.

8. In the results part, baseline pre-endoscopic score in total, variceal and nonvariceal should be given in numbers.

We have included the following comment in the manuscript, "results":

GBS had the highest mean value in the mixed population (12.32), as well as in the two main study groups (12.98 in variceal bleeding and 11.97 in non-variceal bleeding), most patients being at high risk of intervention. ABC score showed a medium risk (mean value 5.02) of mortality rate, as well as AIMS65 (mean value 1.52). Mean PERS is consistent with an 11% chance of mortality prior to endoscopy (Table 2).

Scores	All cases n=363 mean	Variceal bleeding n=127 mean(SD)	Non-variceal bleeding n=236 mean(SD)	P values for t-Student test
AIMS-65	1.52	1.74 (0.95)	1.40 (1.05)	0.003
PERS	3.30	3.76 (1.35)	3.06 (1.70)	0.001
ABC	5.02	5.83 (2.42)	4.59 (2.51)	0.001
GBS	12.32	12.98 (2.90)	11.97 (3.74)	0.008

9. In the discussion part, it should be explaining why no score was a good predictor in length of admission.

I have included the following comment in the discussion section:

No risk score proved to be a good predictor for length of stay (>7 days) as it had poor statistic power, with an AUROC below 0.600. Similar low discriminative abilities were previously reported for PNED, full and pre-endoscopic Rockall score, GBS and AIMS65 score, with an AUROC close to 0.600<sup>[15]</sup>.

Test	Result	Area	Std. Error(a)	Asymptotic Sig.(b)	Asymptotic Confidence Interval	95%
Variceal bleeding						
AIMS65		0.516	0.053	0.768	0.412-0.619	

PERS	0.497	0.054	0.960	0.391-0.604
ABC	0.434	0.053	0.215	0.330-0.538
GBS	0.496	0.053	0.946	0.393-0.600
Non-variceal bleeding				
AIMS65	0.587	0.037	0.024	0.514-0.660
PERS	0.557	0.038	0.139	0.482-0.631
ABC	0.550	0.039	0.194	0.473-0.627
GBS	0.566	0.038	0.084	0.491-0.641

## References

1. Singal AG, Patibandla S, Obi J, et al. Benefits and Harms of Hepatocellular Carcinoma Surveillance in a Prospective Cohort of Patients With Cirrhosis. Clin Gastroenterol Hepatol 2020.

## Round 2

**Specific Comments To Authors:** Answer to point 1 was not satisfactory. Authors could at least perform analyses separately for variceal and non-variceal bleeding. Point 4: a sensitivity of 64.3% and a specificity of 53.2% are very bad, therefore Authors are not allowed to conclude that lactate is a good predictor.

Dear reviewer, Thank you for your excellent review. We highly appreciate your time and effort that you dedicated to our study, and we are grateful for the interesting comments and valuable suggestions. 03713791 Answer to point 1 was not satisfactory. Authors could at least perform analyses separately for variceal and non-variceal bleeding. Point 1 1) The main problem of the design of this study is that such scores have been developed for non variceal bleeding. Variceal bleeding often underlies a cirrhosis, which was indeed less common in the non variceal group, therefore there is relevant heterogeneity between variceal and non variceal group. Therefore I suggest to remove all the analysis of the variceal bleeding, which could be used for another publication and compared to other specific scores, such as MELD or Child Pugh. Thank you for your comment. Our cohort has been divided into two main groups, variceal and non-variceal. Subsequently, all investigated outcomes and scores has been performed separately in the two groups. We have included the analysis of in-hospital mortality in the mixed population (both variceal and non-variceal) as it was suggested by one of the reviewer for practical reasons. Point 4: a sensitivity of 64.3% and a specificity of 53.2% are very bad, therefore Authors are not allowed to conclude that lactate is a good predictor. Sure, I have removed such statements from the manuscript.