DOI: https://doi.org/10.53350/pjmhs22169784

ORIGINAL ARTICLE

Comparison of Prognostic Scores for Upper Gastrointestinal Bleeding in the Hepato-Gastro-Enterology Department

SAEED UR REHMAN[1], AZHAR SAEED[2], ADNAN GHAFOOR[3], SHAFQAT UR REHMAN ORAKZAI[4], AJMAAL JAMI[5], AMANULLAH KHOKHAR[6]

[1]*Chief Medical Specialist District Head Quarter Hospital, Timergara DIR-lower KPK*
[2]*Associate Professor Medicine Multan Medical and Dental College*
[3]*Associate Professor General Medicine, Fauji Foundation, Rawalpindi*
[4]*Consultant Gastroenterologist Naseer Teaching Hospital, Peshawar*
[5]*Assistant Professor Medicine Hamdard University of Medicine and Dentistry, Karachi*
[6]*Assistant Professor Medicine Al Tibri Medical College and Hospital Malir Karachi/ Isra University Campus, Hyderabad*
Corresponding author: Adnan Ghafoor, Email: drad.ork@gmail.com

ABSTRACT

Objectives: The goal of this study is to assess the relative value of individual UGIB prognostic scores in predicting patient outcomes.

Patients and Methods: This study was a descriptive cross-sectional analysis of data collected before. Included were patients admitted to the Al Tibri Medical college and hospital Malir Karachi Center and Fauji foundation Rawalpindi with upper GI bleeding and treated in the Gastroenterology Division. Analyses in this study compared the predictive power of five different prognostic scores (the Glasgow Coma Scale, modified Glasgow Coma Scale, coagulation risk score, and acute ischemic stroke severity score; together, these scores are known as GBS, mGBS, FRS, CRS, and AIMS65) for the occurrence of death and rebleeding within 42 days. ROC (Receiver Operating Characteristic) curves were used to compare the various scores.

Results: A total of 314 individuals were enrolled in the study, with a male-to-female sex ratio of 2.48. In 70.94% of cases, fibroscopy revealed UGIB due to portal hypertension unrelated to peptic ulcer disease. The "FRS" score was the most reliable predictor of mortality or rebleeding for all patients. Compared to other scores, the "FRS" provided the best reliable forecast of whether or not patients would have spots. The "FRS" score was the most reliable one for predicting mortality. Patients deemed to be at low risk (below the threshold value) had a mortality rate of 2.2% according to the "FRS," 9.3% according to the "CRS," 0% according to the "GBS" ($p = 0.565$), 50% according to the "mGBS," and 11.42% according to the "AIMS65." The predictive value of UGIB scores was higher for incidental portal hypertension.

Conclusion: Upper gastrointestinal hemorrhage cases can be accurately predicted using the "FRS" and "CRS" scores. But in the setting of portal hypertension, these scores did badly. UGIB

Keywords: Prognostic Scores, Upper Gastrointestinal Bleeding, Rockall, Glasgow-Blatchford

INTRODUCTION

Upper gastrointestinal bleeding (UGIB) is common in medical [1]. About 5 percent of those visiting emergency rooms in industrialized nations have this [2]. According to their underlying mechanisms, the causes of UGIB can be classified into two groups: those connected to portal hypertension and those unrelated to it [3, 4]. Portal hypertension associated with UGIB is the most serious consequence of cirrhosis [4]. UGIB has a high mortality rate; estimates vary from 6% in cases of UGIB unrelated to portal hypertension to 24% in cases of UGIB due to portal hypertension [5-6]. Several scores have been described in recent years that simplify emergency care of patients by combining clinical and endoscopic signs. These scores help hospitals prioritize care by identifying those patients most at risk for developing life-threatening complications [7-10]. Patients at high risk of rebleeding and mortality can be predicted using several number ratings [11]; these include the Glasgow-Blatchford bleeding score (GBS), the modified Glasgow-Blatchford bleeding score (GBS), the Full Rockall Score (FRS), the Clinical Rockall Score (CRS), and the AIMS65. Baggy et al [12] reported that in the Gastroenterology Department of the Campus Teaching Hospital in Togo, the incidence rate was 7.32 percent in 2012, while the mortality rate was 5.32 percent. However, this study only looked into what led to UGIB in the Al Tibri Medical College Hospital, Malir Karachi and Fauji Foundation Rawalpindi campus. Furthermore, there is no verified predictive score for locating people at low risk. Everyone requires an evaluation for upper gastrointestinal haemhemorrhageconsequently admitted. Therefore, we thought it was important to undertake this research to assess and compare the performance of various UGIB prognostic scores.

PATIENTS AND METHODS

There was a retrospective collection for this cross-sectional study between June 2021 to December 2021. Patients who underwent microscopy and were monitored for 42 days while hospitalized in the Al Tibri Medical College and hospital Malir Karachi Center and Fauji Foundation Rawalpindi Teaching Hospital for upper GI bleeding were included. Patients who could not complete the fibroscopy because of loss of follow-up were also not included. The patient's right to confidentiality was upheld. The occurrence of haematemesis or melena was considered evidence of upper gastrointestinal hemorrhage. Before the fiberscope was used, the patients underwent a medical resuscitation regimen. Only hemodynamically stable individuals were admitted for microscopy. Stata 13 was used to analyze the data.

We used a descriptive and an analytical subset of the population in our investigation. A comparison of the sensitivity and specificity of five prognostic scores (Global Bleeding Score [GBS], Modified Global Bleeding Score [mGBS], Thrombolysis Risk Score [FRS], and Acute Ischemia Modification of Management Score [AIMS65]) in predicting the occurrence of death and rebleeding was performed in the analytical section. The dissimilarities between these scores were analyzed using ROC curves (Receiver Operating Characteristic). Cutoff values of 0 for CRS, 2 for FRS, 1 for GBS, 1 for mGBS, and 0 for AIMS65 were used in the published literature [13-14]. Patients who had readings over these cut-offs were at high risk for consequences (such as more bleeding or death) (rebleeding or death). Quantitative data were presented as mean, standard deviation, and ranges, whereas qualitative data were expressed as numbers and percentages. To evaluate the data, we used Fischer's exact, Chi-squared, and Student's t-test. There was a statistically significant contrast between the two factors ($p< 0.05$).

RESULTS

There were 314 total participants in the study. About 2.48 males were for every female. Seventy-0.94 percent of patients with fibroscopy-confirmed UGIB also had portal hypertension. Patients with portal hypertension-related UGIB were more likely to be male (76.12%) than those with unrelated UGIB (69.8%) ($p = 0.34$). Hospitalized patients with a diagnosis of portal hypertensive UGIB

were, on average, 43.02 14.05 years old, compared to 46.06 17.64 years old for all UGIB patients (p = 0.21). Hypertension was substantially correlated with the use of nonsteroidal anti-inflammatory medicines (p = 0.001), the presence of hypertension (p = 0.003), and stomach pain (p = 0.021), all of which were unrelated to the gastrointestinal tract portal. Rebleeding (p = 0.002) and death (p= 0.0001) were also significantly associated with portal hypertension UGIB (p= 0.001). Patients admitted with unrelated portal hypertension UGIB exhibited a significantly higher mean hemoglobin level (08.99 g/dl; p= 0.001) than those admitted with associated portal hypertension UGIB (07.24 g/dl; p 0.001). Statistics showed that thrombocytopenia (p =0.001) and a low prothrombin level (p 0.001) were both secant predictors of portal hypertension UGIB. It was s shown that portal hypertension UGIB had higher mean values for the main prognostic markers (Table 1). Statistical significance (p of a specific occurrence) is shown for the clinic biological parameters of the patients in Table 1 according to the etiologies (death or rebleeding).

The FRS had a ROC of 0.664–0.605, the GBS had a ROC of 0.529–0.504, and the AIMS65 had a ROC of 0.504–0.613 for predicting mortality or rebleeding throughout the entire study population (Figure 1; Table 2). The only comparisons in which this difference was significant were those between the FRS and the CRS (p 0.001), the FRS and the GBS (p = 0.003), the FRS and the GBS (p 0.001), and the AIMS65 and the GBS (p = 0.014). The FRS was the most accurate score in determining who would die or incur more bleeding. When comparing individuals with and without portal hypertension UGIB, no score predicted the incidence of an incident (rebleed or death; p = 0.523 and p = 0.911, respectively). Figure 1 depicts the diagram.

Table 1: Features in terms of biology and medicine.

	Portal hypertension-related	Non-portal hypertension-related	P
Age (years)	43.02 ± 14.05	46.06 ± 17.64	0.210
Sex (male)	76.12%	69.88%	0.339
Hepatic insufficiency	90.47%	9.53%	<0.001
Chronic liver disease	92.85%	7.15%	<0.001
Ethyl	32.91%	67.09%	0.330
Non-steroidal anti-inflammatory	14.86%	85.14%	0.001
Abdominal pain	22.40%	77.60%	0.021
Automedication	21.29%	78.71%	0.022
Arterial hypertension	08.57%	91.43%	0.003
Syncope	25%	75%	0.677
Altered consciousness	28.38%	71.62%	0.123
Hepatic insufficiency signs	88.88%	11.12%	<0.001
Portal hypertension signs	88%	12%	<0.001
Hemoglobin rate (g/dl)	07.24 ± 2.31	08.99 ± 3.49	<0.001
White blood cells (/ml)	8648 ± 6847	8237 ± 5102	0.627
Platelets (/ml)	141,612 ± 16,110	198,945 ± 8847	<0.001
Urea (g/l)	0.50 ± 0.52	0.53 ± 0.47	0.708
Creatininemia (mg/l)	12.74 ± 9.67	19.31 ± 29.63	0.100
Prothrombin rate	54.90 ± 15.35	71.11 ± 19	<0.001
Albumin (g/l)	31.15 ± 7.54	28.83 ± 11.97	0.081
ASAT (UI/l)	229 ± 911	111 ± 333	0.218
ALAT (UI/l)	86.57 ± 146.02	82.93 ± 242.24	0.919
Rebleeding	54.83%	45.16%	0.001
Death	71.42%	28.58%	<0.001
FRS	4.85 ± 1.34	3.53 ± 1.34	<0.001
CRS	1.95 ± 1.59	1.09 ± 0.93	<0.001
GBS	10.58 ± 3.26	8.86 ± 3.40	<0.001
mGBS	9.08 ± 2.73	8.04 ± 3.17	0.018
AIMS65	0.67 ± 0.80	0.42 ± 0.58	0.008

Table 2: Total sum of the area under the ROC curves.

		Patients N=234	UGIB N=68	UGIB N=166
FRS	Incident	0.664 (0.597 - 0.731)	0.508 (0.358 - 0.658)	0.517 (0.356 - 0.678)
	Saignement	0.639 (0.564 - 0.715)	0.467 (0.310 - 0.624)	0.517 (0.356 - 0.678)
	Décès	0.717 (0.647 - 0.786)	0.643 (0.481 - 0.840)	0.609 (0.189 - 1.000)
CRS	Incident	0.605 (0.532 - 0.678)	0.490 (0.336 - 0.644)	0.480 (0.329 - 0.638)
	Saignement	0.588 (0.507 - 0.669)	0.447 (0.285 - 0.609)	0.484 (0.329 - 0.638)
	Décès	0.663 (0.584 - 0.742)	0.636 (0.470 - 0.801)	0.642 (0.249 - 1.000)
GBS	Incident	0.529 (0.456 - 0.603)	0.499 (0.399 - 0.659)	(0.523 (0.369 - 0.677)
	Saignement	0.532 (0.452 - (0.612)	0.500 (0.330 - 0.669)	0.523 (0.369 - 0.677)
	Décès	0.564 (0.483 - 0.644)	0.542 (0.343 - 0.741)	0.792 (0.607 - 0.977)
mGBS	Incident	0.504 (0.432 - 0.576)	0.497 (0.331 - 0.651)	0.535 (0.390 - 0.679)
	Saignement	0.509 (0.433 - 0.584)	0.535 (0.390 - 0.679)	0.522 (0.352 - 0.692)
	Décès	0.534 (0.453 - 0.615)	0.525 (0.325 - 0.726)	0.839 (0.680 - 0.990)
AIMS 65	Incident	0.613 (0.544 - 0.682)	0.550 (0.406 - 0.693)	0.493 (0.351 - 0.634)
	Saignement	0.589 (0.515 - 0.663)	0.476 (0.330 - 0.623)	0.493 (0.351 - 0.634)
	Décès	0.659 (0.580 - 0.737)	0.625 (0.414 - 0.836)	0.549 (0.277 - 0.821)

Rebleed Prediction Accuracy Analysing the Utility of Various Scores: Figure 1 and Table 2 show that the FRS predicted rebleeding in the study population with an area under the ROC curve of 0.639, the CRS predicted rebleeding with an area under the ROC curve of 0.588, the Area under the ROC curve for the GBS prediction of rebleeding was 0.532, whereas the area under the ROC curve for the mGBS prediction was 0.509. The only comparisons in which there was a statistically significant difference in performance were those between FRS and GBS (p = 0.009), FRS and GBS (p = 0.029), and FRS and CRS (p = 0.001). The AIMS65 predicted rebleeding with an area under the curve. The FRS was therefore the score that best predicted future bleeding events. In patients with associated portal hypertension UGIB, no score predicted the occurrence of a rebleed (p = 0.429), and in people without associated portal hypertension UGIB, no score predicted the occurrence of a rebleed (p = 0.911)

Among patients with low mortality risk, those with FRS (2.2%) were more common than those with CRS (9.3%), GBS (0%; p = 0.565), mGBS (50%), or AIMS65 (0%). (11.4 percent). (Much lower than the cutoff point). Patients with UGIB and portal hypertension showed a significantly higher mortality risk (p =0.001). The GBS (sensitivity = 100 percent; negative predictive value = 100 percent), the FRS (sensitivity = 98.21 percent; negative predictive value = 97.72 percent below threshold), and the CRS (sensitivity = 89.28 percent; negative predictive value = 90.62 percent below threshold) had the best results in identifying patients at low risk of death.

Table 3: Scores' innate qualities.

Score	Cut-off value	Sensibility (%)	Specificity (%)	PPV (%)	NPV (%)	P
FRS	>2	98.21	16.66	20.37	97.72	0.004
CRS	>0	89.28	22.42	20	92.62	0.048
GBS	>1	100	1.55	18.06	100	0.34
mGBS	>1	94.64	3.48	17.54	75	0.05
AIMS65	>0	64.28	59.68	25.71	88.5	0.001

DISCUSSION

Our study's primary shortcoming was that it was conducted retroactively. Unfortunately, not all cases could be accommodated due to unusable records.

We examined their ROC curves, sensitivities, and specificities to evaluate the reliability of five distinct ratings for predicting the likelihood of death and rebleeding. Moderate success in predicting the various outcomes investigated were seen with these scores, particularly in unrelated portal hypertension UGIB which is consistent with the literature.

The FRS had better predictive accuracy (p >0.05) for rebleeding and mortality than any other score. There was no difference in the scores' predictive performance between patients hospitalized for UGIB due to portal hypertension and those without such a connection (p > 0.05). The mGBS showed excellent predictive validity for mortality in individuals with UGIB and unrelated portal hypertension (p =0.001). Patients with portal

hypertension and UGIB had outstanding success in predicting death using the scores ("FRS" and "AIMS65").

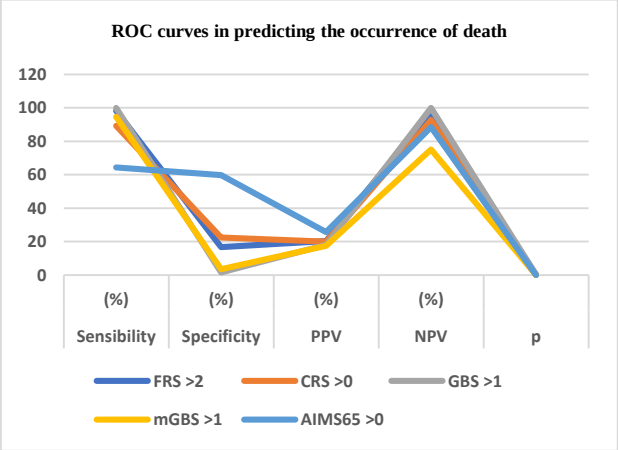

Fig.1: The Operation Characteristics of a Receiver.

Consistent with prior findings the FRS and GBS demonstrated superior performance in predicting the incidence of an episode in individuals with unrelated portal hypertension and gastrointestinal bleeding [15-16]. This is because the difference scores consider the parameters that provide a supposition of liver injury without quantifying this damage. This helps to clarify why ratings like "AIMS65" which incorporate a quantifiable measure of liver damage, are so effective at predicting the occurrence of death in patients with simultaneous portal hypertension UGIB. When compared to the FRS and CRS, the AIMS65 performed worse [17-18]. One possible explanation for our study's lack of association between UGIB and portal hypertension is the relatively low incidence of portal hypertension UGIB that we observed (29.06 percent). The FRS and AIMS65 were the best predictors of rebleeding, just as they were in European studies [19]. Similar to prior research it was discovered that the ratings were more accurate at predicting death than rebleeding. According to research by Kim et al the FRS and CRS are highly predictive of death, while the GBS and mGBS are significantly predictive of rebleeding.

Individuals who were not at high risk of rebleeding or death (thresholds of >2 and >0, respectively) could be identified with high sensitivity (95%) and specificity (89%). The major goal of developing these scores was to reliably predict the chance of either future bleeding or fatality [20]. Therefore, our results are in line with the literature. In some studies, patients considered "below the cut-off "experienced a high mortality rate [21-22]. Differences in age and comorbidities between the populations were examined as potential epidemiological factors in this discrepancy. Literature indicates that the FRS predicts mortality more accurately than the CRS. This is because the FRS cares for every aspect of each patient's condition. Despite this, the CRS continues to pique people's interest due to its reliability (sensitivity = 89.28%; negative predictive value = 90.56%; use at the bedside in emergencies) and efficacy in diagnosing the disease.

Using a cutoff value of > 1, the GBS and mGBS were very sensitive (100 and 96.42 percent, respectively) in identifying patients with no significant risk. The GBS had a strong negative predictive value (100 percent). Patients' risk can be stratified using either of these ratings, as described in detail by several different series [23]. However, we cannot consider the value of these two scores (p > 0.05). Both the FRS (threshold > 2) and the CRS (threshold > 0) had a high sensitivity (98.21% and 89.28%, respectively) and negative predictive value (90.72 and 90.62%) at the p 0.05 level, which is consistent with earlier studies [24]. This lack of statistical significance is likely due to the small sample size of high-risk people in our study (1.27 percent for GBS and 3.82 percent for GBS).

CONCLUSION

Two reliable scores for predicting the occurrence of an episode in cases of upper gastrointestinal bleeding are the FRS and the CRS. Due to their high sensitivity and negative predictive value, they are effective in identifying hospitalization-necessitating high-risk individuals. For patients with portal hypertension UGIB, however, these scores perform poorly.

REFERENCES

1. Bagny, A., Kogoe, L. R. M., Lawson-Ananissoh, L. M., Kaaga, L. Y., Redah, D., Gbolou, M. H., & Kanake, Y. Y. (2021). Comparison of Prognostic Scores for Upper Gastrointestinal Bleeding in the Hepato-Gastro-Enterology Department of Campus Teaching Hospital of Lome. Open Journal of Gastroenterology, 11(9), 161-171.
2. Nkurunziza, L., El Bacha, H., Gharbi, T., Benzzoubeir, N., & Errabih, I. (2022). Upper Gastrointestinal Bleeding: A Prospective Epidemiological Study about 72 Cases and Review of the Literature. Saudi J Med Pharm Sci, 8(7), 319-326.
3. Choi, J., Lee, J. S., Lee, S., Kim, Y. W., Lee, Y., & Kim, T. Y. (2022). International Normalized Ratio-to-Albumin Ratio as a Novel Marker of Upper Gastrointestinal Bleeding Severity. Gastroenterology Research and Practice, 2022.
4. Dicko, M. Y. (2022). Gastrointestinal Bleeding and Non-Steroidal Anti-Inflammatory Drugs in Hospitals in Bamako, Mali. SAS J Med, 4, 340-344.
5. Henry, C., Bassignani, A., Berland, M., Langella, O., Sokol, H., & Juste, C. (2022). Modern Metaproteomics: A Unique Tool to Characterize the Active Microbiome in Health and Diseases, and Pave the Road towards New Biomarkers—Example of Crohn's Disease and Ulcerative Colitis Flare-Ups. Cells, 11(8), 1340.
6. Deguelte, S., Metoudi, A., Rhaiem, R., Hoeffel, C., Brixi, H., Cadiot, G., & Kianmanesh, R. (2022). Small Intestinal Neuroendocrine Neoplasm: Factors Associated with the Development of Local Tumor-Related Symptoms. Neuroendocrinology, 112(3), 252-262.
7. Lincoln, M., Keating, N., O'Loughlin, C., Tam, A., O'Kane, M., MacCarthy, F., & O'Connor, E. (2022). Comparison of risk scoring systems for critical care patients with upper gastrointestinal bleeding: predicting mortality and length of stay. Anaesthesiology Intensive Therapy, 54(1).
8. Lee, H., Jung, H. K., Kim, T. O., Byeon, J. R., Jeong, E. S., Cho, H. J., ... & Jung, S. (2022). Clinical outcomes of acute upper gastrointestinal bleeding according to the risk indicated by Glasgow-Blatchford risk score-computed tomography score in the emergency room. The Korean Journal of Internal Medicine, 37(6), 1176-1185.
9. Yamaguchi, D., Nagatsuma, G., Sakata, Y., Mizuta, Y., Nomura, T., Jinnouchi, A., ... & Esaki, M. (2022). Safety and Efficacy of Sedation During Emergency Endoscopy for Upper Gastrointestinal Bleeding: A Propensity Score Matching Analysis. Digestive Diseases and Sciences, 1-9.
10. Ito, N., Funasaka, K., Furukawa, K., Kakushima, N., Hirose, T., Muroi, K., ... & Fujishiro, M. (2022). A novel scoring system to predict therapeutic intervention for non-variceal upper gastrointestinal bleeding. Internal and Emergency Medicine, 17(2), 423-430.
11. Jin, X., Wang, X., & Mao, P. (2022). Early Identification of High-Risk Factors for Upper Gastrointestinal Bleeding. Evidence-Based Complementary and Alternative Medicine, 2022.
12. Veisman, I., Oppenheim, A., Maman, R., Kofman, N., Edri, I., Dar, L., ... & Kopylov, U. (2022). A Novel Prediction Tool for Endoscopic Intervention in Patients with Acute Upper Gastro-Intestinal Bleeding. Journal of clinical medicine, 11(19), 5893.
13. Liu, Z., Zhang, L., Bai, W. H., Cheng, L., Zhan, L. Y., Wang, P. X., ... & Dong, W. G. (2022). Establishment and Validation of the Nomogram Model for Mortality Risk in Patients with Dangerous Upper Gastrointestinal Bleeding.
14. Osman, İ. N. A. N., Acehan, M. F., KARSAVURANOĞLU, B., ŞAHİNER, E. S., ASLAN, M., & İhsan, A. T. E. Ş. Upper Gastrointestinal Bleeding: Do Emergency Endoscopic Evaluations Affect Clinical Outcomes?. Middle Black Sea Journal of Health Science, 8(3), 440-449.
15. Kherad, O., Restellini, S., Almadi, M., Martel, M., & Barkun, A. N. Comparative Evaluation of the ABC Score to Other Risk Stratification Scales in Managing High-risk Patients Presenting With Acute Upper Gastrointestinal Bleeding. Journal of Clinical Gastroenterology, 10-1097.

16. Benedeto-Stojanov, D., Bjelaković, M., Stojanov, D., & Aleksovski, B. (2022). Prediction of in-hospital mortality after acute upper gastrointestinal bleeding: cross-validation of several risk scoring systems. Journal of International Medical Research, 50(3), 03000605221086442.
17. Vadillo Calles, F. (2022). Validación de una nueva escala de riesgo pronóstica en hemorragia digestiva alta-el Score Map (ASH).
18. Sharma, S., Agarwal, S., Saraya, A., Choudhury, A., Mahtab, M. A., Alam, M., ... & Sarin, S. K. (2022). Acute variceal bleeding portends poor outcomes in patients with acute-on-chronic liver failure: a propensity score matched study from the APASL ACLF Research Consortium (AARC). Hepatology international, 16(5), 1234-1243.
19. B Hadi, Y., Khan, R. S., Lakhani, D. A., Khan, A. Y., Jannat, R. U., Khan, A. A., ... & Singal, A. K. (2022). Antibiotic Prophylaxis for Upper Gastrointestinal Bleed in Liver Cirrhosis; Less May Be More. Digestive Diseases and Sciences, 1-7.
20. Lucioni, T., Hines, C., Witek, L., & Rejeski, J. (2022). Inequities in rates of variceal screening examinations. Bulletin of the National Research Centre, 46(1), 1-5.
21. Faria, S., Amin, M. B., Uddin, M. S., Yasmin, T., Shanta, K. K., Deepa, K. P., & Bahar, H. (2022). Correlation of Ultrasonographically Measured Splenic Size with Endoscopic Grading of Esophageal Varices in Cirrhosis of Liver. Bangladesh Critical Care Journal, 10(1), 57-61.
22. Grether, S. L. (2022). Simulation verschiedener Blutungstypen im oberen Gastrointestinaltrakt zum Training der Blutstillung in der flexiblen Endoskopie (Doctoral dissertation, Universität Tübingen).
23. Orpen-Palmer, J., & Stanley, A. J. (2022). Update on the management of upper gastrointestinal bleeding. BMJ Medicine, 1(1).
24. Meier, B., Wannhoff, A., Denzer, U., Stathopoulos, P., Schumacher, B., Albers, D., ... & Caca, K. (2022). Over-the-scope-clips versus standard treatment in high-risk patients with acute non-variceal upper gastrointestinal bleeding: a randomised controlled trial (STING-2). Gut, 71(7), 1251-1258.