

THE MEANING OF THE FORREST CLASSIFICATION, ROCKALL AND BLATCHFORD SCORE IN THE PREDICTION OF THE RE-BLEEDING IN PATIENTS WITH SUPERIOR NON-VARICEAL DIGESTIVE BLEEDING

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Cuvinte cheie: hemoragie digestive superioară non-variceala, clasificarea Forrest, scor Rockall, scor Blatchford

Abstract: Prediction of the risk in patients with upper gastrointestinal bleeding has been the subject of different studies of several decades. Rockall and Blatchford score evaluate the prediction of rebleeding at these patients. The Forrest classification used the endoscopic investigation in the bleeding lesion and make the rebleeding prediction.

Rezumat: Predicția riscului de resângerare și mortalitate la pacienți cu hemoragie digestivă superioară a fost subiectul multor studii de-a lungul timpului. Scorul Rockall și Blatchford oferă date despre predicția resângerării și evoluției la pacienți cu hemoragie digestivă superioară non-variceala. Clasificarea Forrest evaluează endoscopic leziunea sângărândă și în funcție de aceasta se poate stabili predictibilitatea resângerării.

INTRODUCTION

The prediction of the re-bleeding risk in patients with superior digestive hemorrhage was the subject of many studies along the time. In SUA more than 500 000 of new cases of gastric and duodenal ulcer are diagnosed annually and approximately 4 million persons presents recurrent bleeding through gastric and duodenal ulcer (1,2,3). The superior digestive hemorrhage represents a common emergency in the clinical practice and has the incidence of over 50-170%/year (4,5). The bleeding through gastric and duodenal ulcer is met at 50-70% of the admitted patients for superior digestive hemorrhage (6,7,8). 80% of the cases with the diagnosis of superior digestive hemorrhage have a good prognosis with the spontaneous stop of the hemorrhage (9). The endoscopic therapy in the majority of the cases stops the active bleeding, but in 10-20% of the cases after initial hemostasis the patients present continuous re-bleeding or re-bleeding (10). The re-bleeding was defined as a new episode of bleeding during hospitalization after the initial bleeding was stopped (10). The Forrest classification stratifies the patients with superior digestive hemorrhage in categories of high and low risk for re-bleeding and mortality (11).

A series of systems of scores clinical and endoscopical have been developed and described in the literature for the prediction and stratification of the patients with digestive superior hemorrhage. Those score systems include a series of parameters such as: the patient's age, the presence or absence of the shock, pulse, comorbidities, and endoscopic signs at the admission in the hospital (12,13).

THE AIM OF STUDY

The apparition of re-bleeding is considered a factor of risk negatively independent and is important for the mortality of the patients with superior digestive hemorrhage. In the presence of the re-bleeding, the mortality rate grows 5 times (10,11). In

this study we have followed the evaluation of the re-bleeding using the Forrest classification, the Rockall system of score (clinically and complete) and the Blatchford score.

MATERIAL AND METHODS

We have evaluated prospectively 613 patients with the diagnosis of non-variceal digestive superior hemorrhage, admitted in the Clinic of Gastroenterology and Hepatology of the Clinical County Emergency Hospital Timisoara during 2007-2010. Each patient with the diagnosis of digestive superior non-variceal hemorrhage of ulcerous cause was evaluated in the Forrest classification, the score system Rockall and the Blatchford score, and we pursued the apparition of the re-bleeding and the affiliation of the patient in a risk category. The endoscopic evaluation of the ulcerous lesion was determined in accordance with the Forrest classification.

Forrest Classification (11):

- I – Active bleeding (FIA- arterial bleeding, FIB- diffuse arterial bleeding),
- II - Brand of recent bleeding (FIIA- visible blood vessel, FIIB- adhesive clot), FIIC - Ulcer with a black base-haematina,
- III-Ulcer with a clean base.
 - SRH=Brand of recent bleeding
 - SRH major = Forrest IA, IB, IIA, IIB
 - SRH minor = Forrest IIC și III

Score system Rockall is used in the prediction of the re-bleeding on the basis of the clinical and endoscopical parameters (13). The score system Rockall was developed for the prediction of the mortality as well as for the prediction of the re-bleeding. This includes the following variables (11,14):

- The patient's age;
- The presence/absence of the shock (Arterial pressure, pulse);
- Comorbidities (cardiac insufficiency, renal insufficiency,

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hepatic insufficiency, ICC, malignity of the digestive tract, disseminated malignity);

- Endoscopic classification of the bleeding.

The score system Blatchford was used in the prediction of the clinical evolution of the patients with digestive superior hemorrhage without endoscopic evaluation. The risk markers used in the Blatchford score are the following: the growing of the sanguine urea, the decreasing of the haemoglobine, the decreasing of the systolic arterial pression, the pulse, melena, syncope, cardiac insufficiency, hepatic cirrhosis (15).

In accordance with the clinical parameters evaluated in the Blatchford score, at values of the score bigger than 1, is possible to select the patients with high risk, and the patients with a value of 0 of the score have no indication of an emergency endoscopic treatment (15).

In our study we have divided the patients in two groups:

- With re-bleeding;
- Without re-bleeding.

RESULTS

There have been evaluated 613 patients; 404 males (66%) and 209 females (34%). Sex ratio=2/1.

From the 613 patients with ulcerous lesions that determined superior digestive non-variceal hemorrhage, there were 478 patients that presented (77%), the rest of the patients presented superior digestive hemorrhage secondary to the gastric neoplasma 46 patients (8%) and other etiologies 89 patients (15%).

From the total of the evaluated patients in the study 245 belonged to the Forrest classes IA, IB, IIA, IIB, 72 patients in the Forrest class IIC and 169 patients in the Forrest class III (Table no.1).

In the high risk category of the Rockall score (≥ 6) there are 265 patients (54,5%), in the category of medium risk there are 211 patients (43,4%) and in the category of low risk 10 patients (2,1%) (Table no.1).

In the Forrest classification the patients in the study framed in the percentage of 50,4% in the category of high risk (IA, IB, IIA, IIB). In the class IA there were 37 patients (8%), in the class IB there were 63 patients (13%), in the class IIA there were 87 patients (18%), in the class IIB there were 58 patients

(12%), in the class IIC 72 patients (15%), and in the class III there were 169 patients (34%) (Table no. 2).

The patients with re-bleeding had the following distribution: 8,3% in the Forrest class IA, 25% in the Forrest class IB, 41,7% in the Forrest class IIA, 16,7% in the Forrest class IIB, 8,3% in the Forrest class IIC (Table no. 2)

Table no. 2. Repartition of the patients with re-bleeding in the Forrest classification

Forrest classification	Patients		Cases of re-bleeding	
	no.	%	no.	%
IA	37	7,6%	1	8,3%
IB	63	13%	3	25%
IIA	87	17,9%	5	41,7%
IIB	58	11,9%	2	16,7%
IIC	72	14,8%	1	8,3%
III	169	34,8%	0	0%
Total	486	100%	12	100%

In the Rockall score 83,3% of the re-bleedings produced in patients from the category of high risk and 16,7% in patients from the category of medium risk (Table no.3)

In the clinical Rockall score (> 0) 481 patients (98%) framed in the high risk category (Table no.4) and in the Blatchford score 100% of the patients obtained values > 0 , corresponding to the high risk category (Table no.5). The smallest value of the clinical Rockall score that produced the re-bleeding was 1 (Table no.4). In the clinical Rockall score the re-bleedings are situated in the interval 1-5. At the value 0 of the clinical Rockall score there are 5 patients from the Forrest classes IIA and IIB. In the Blatchford score the smallest value at which the re-bleeding produced was 13 (Table no.5).

The total amount of re-bleedings is situated in the interval 13-19 of the Blatchford score. In the interval of score Blatchford 2-19 are framed 100% from the patients with high risk in the Forrest classification (Table no.6). The re-bleeding was present in a number of 12 cases (2,5%). In the Forrest classes considered with high risk for re-bleeding produced 91,6% (n=11) from the total of the re-bleedings, the rest of 8,4% (n=1) belonged to the low risk classes, respectively IIC. In the Rockall score 83,3% (n=10) of the re-bleedings were present in the category of high risk, the rest of 16,7% (n=2) in the category of medium risk, 100% of the re-bleedings produced in the category considered with high risk of re-bleeding of the clinical Rockall score and Blatchford.

Table no. 1 Repartition of the patients with re-bleeding in the complete Rockall score and the Forrest classification

Category Complete Rockall Score	Classes FIA, FIB, FIIA, FIIB		Class FIIC		Class FIII		Total		Patients with re-bleeding	
	no.	%	no.	%	no.	%	no.	%	no.	%
High Risk	190	78%	33	45,8%	42	24,9%	265	54,5%	10	83,3%
Medium Risk	55	22%	39	54,2%	117	69,2%	211	43,4%	2	16,7%
Low Risk	0	0%	0	0%	10	5,9%	10	2,1%	0	0%
Total	245	100%	72	100%	169	100%	486	100%	12	2,5%

Table no. 3. Repartition of the patients with re-bleeding in the Forrest classes and the complete Rockall score

Forrest classes	Patients in the Rockall score (no)			Patients with re-bleeding in Rockall score (no.)		
	low	medium	high	low	medium	High
IA	0	8	29	0	0	1
IB	0	14	49	0	1	2
IIA	0	20	67	0	1	4
IIB	0	13	45	0	0	2
IIC	0	39	33	0	0	1
III	10	117	42	0	0	0
Total	10	211	265	0	2	10

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Table no. 4. Repartition of the patients with re-bleeding in Forrest classes and clinical Rockall score

The value of the clinical Rockall score	0	1	2	3	4	5	6	7	Total
Classes FIA,IB,IIA,IIB	5	18	34	75	66	37	9	1	245
Patients with re-bleeding no.	0	1	1	2	5	3	0	0	12
Patients with re-bleeding %	0%	8,3%	8,3%	16,7%	41,7%	25%	0%	0%	100%

Table no. 5. The value of the Blatchford score at which the re-bleeding produced

Blatchford score values	No. patients with re-bleeding	% patients with re-bleeding
13	2	16,7%
14	3	25,0%
15	1	8,3%
16	2	16,7%
17	1	8,3%
18	3	25,0%

Table no.6 Repartition of the patients in the Blatchford score and the Forrest classes IA,IB,IIA,IIB

Blatchford score value	Patients Forrest IA, IB, IIA, IIB (%)	Patients Forrest IA,IB, IIA,IIB (no.)	Blatchford score values	Patients Forrest IA,IB, IIA,IIB (%)	Patients Forrest IA,IB, IIA,IIB (no.)
2-19	100%	245	9-19	85,7%	210
3-19	99,6%	244	10-19	81,2%	199
4-19	99,6%	244	11-19	78,0%	191
5-19	99,2%	243	12-19	69,8%	171
6-19	96,3%	236	13-19	58,4%	143
7-19	94,3%	231	14-19	44,9%	110
8-19	91,4%	224	15-19	26,1%	39
			0-19	100%	245

Table no. 7. Repartition of the patients in the categories of high risk for the re-bleeding

	Total patients		Patients with re-bleeding	
	Nr.	%	Nr.	%
Forrest classes IA,IB,IIA,IIB	245	50,4%	11	91,6%
high Rockall score category	265	54,5%	10	83,3%
Clinical Rockall score >0	480	98%	12	100%
Blatchford score >0	486	100%	12	100%

From the total amount of patients evaluated in the present study in the high risk category for re-bleeding of the Forrest classification situated 50,4% of the patients, in the one of the complete Rockall score 54,5% of the patients, in the one of the clinical Rockall score 98% of the patients, and in the category of high risk of the Blatchford score 100% of the patients (Table no.7).

DISCUSSIONS

Re-bleeding was considered the most important risk factor for the mortality and determines deceases 5 times more frequent comparatively to the patients whose bleeding stops spontaneously (13), described in the literature in 80% of the cases (9). The prediction of the risk in patients with non-variceal superior digestive hemorrhage and precocious stratification in the categories of high and low risk for re-bleeding and mortality after hospitalization is very important. (14,15)

The non-variceal superior digestive hemorrhage is more frequent in men than in women (2:1) (16). In our study 66% are male and 34% are female. The re-bleeding was observed in 2,5% patients.

From the total amount of patients with non-variceal superior digestive hemorrhage of ulcerous cause evaluated 12 patients presented re-bleeding (2,5%) In the category of high risk for re-bleeding of the Forrest classification situated 91,6% (n=11) of the patients that presented re-bleeding, in the one of the complete Rockall score 83,3% (n=10) of the patients that

presented re-bleeding, in the one of the clinical Rockall score (>0) 100% of the patients, and in the category of high risk of the Blatchford score(>0) 100% of the patients.

In the Forrest classification the repartition of the patients that presented re-bleeding is the following: 8,3% in the Forrest class IA, 25% in Forrest class IB, 41,7% in the Forrest class IIA, 16,7% in the Forrest class IIB, 8,3% in the Forrest class IIC. 91,6% of the re-bleedings belong to the patients from the Forrest classes IA, IB, IIA, IIB. The re-bleeding in the patients taken in our study has smaller values in the Forrest classes I than those cited in the literature and comparable to those in the Forrest classes II A, IIB, IIC (8, 17,18).

The Blatchford score > 0 (high risk) identifies 100% of the patients that presented with re-bleeding, 100% of the patients with high risk of re-bleeding from the Forrest classes IA, IB, IIA, IIB. In the score interval 13-19, representative for all of the re-bleedings situated 58,4% of the patients with high risk for re-bleeding from the Forrest classes (IA, IB, IIA, IIB).

The clinical Rockall score > 0 (high risk) identifies 100% of the patients that presented re-bleeding and 98% of the patients with high risk of re-bleeding from the Forrest classes (IA, IB, IIA, IIB). The category of high risk of the complete Rockall score identifies 83,3% of the patients that presented re-bleeding and 78% of the patients with high risk of re-bleeding from the Forrest classification (Two studies realized separately, one by Vreeburg et al., and the other by Church and Palmer conclude that the Rockall score although has a better predictibility of the mortality, its prediction linked to re-bleeding is unsatisfactory. (19,20,21). The deficiency of the prediction of the re-bleeding of the Rockall score we have observed it also in the present study and we consider this thing to be the result of the suboptimal framing in the high risk category of the patients in the Forrest classes IA, IB, IIA, IIB, considered with high risk of re-bleeding.

CONCLUSIONS

1. The Forrest classification has the best predictibility of the re-bleeding.

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2. In our study we haven't observed differences between the predictability of re-bleeding of the pre-endoscopic clinical Rockall and Blatchford scores.
3. The Blatchford score identifies 100% of the patients with high risk of re-bleeding from the Forrest classes.
4. The Rockall complete score has a decreased prediction of the re-bleeding through the suboptimal framing in the high risk category of the patients in the Forrest classes IA, IB, IIA, IIB.

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