

## **RANSON, BALTHAZAR AND IMRIE SCORES IN ACUTE PANCREATITIS**

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### ***Abstract***

*The first system of scoring applied in acute pancreatitis has been created by Ranson and has 11 clinical and analytical objective measurements in the first 48 hours from the disease. A modification of this system has been created by Imrie. The best clinical applicability of these systems is represented by the identification of those ill patients who need only those supportive therapeutical measurements.*

**Key words:** Cytotoxic, edematosa pancreatitis, trypsinogen, PNM

### **INTRODUCTION**

The first system of scoring applied in acute pancreatitis has been created by Ranson and has 11 clinical and analytical objective measurements in the first 48 hours from the disease. A modification of this system has been created by Imrie. The best clinical applicability of these systems is represented by the identification of those ill patients who need only those supportive therapeutical measurements.

The first 24 hours from the admission these systems have a sensitivity in finding the severe forms of 70%, similarly with the Ranson and Imrie system of scores.

From the point of view of the biological markers, the progress accomplished in the evolution of the prognosis of acute pancreatitis is based on the present knowledge of the physical pathological events that appear during the evolution of the disease. No matter the etiological factors that provoke the acute pancreatitis, the free radicals of oxygen will be set free from the injured acinary cells that are cytotoxic.

The serical concentrations of the  $\alpha_1$  inhibitor-proteasis increase during the acute pancreatitis especially in the severe cases and are significantly more in the necrosis pancreatitis than in the edematosa pancreatitis.

In the severe forms of acute pancreatitis, even in the beginning of the disease, we could remark an increased urinary elimination of trypsinogen, different than in the easy forms where the elimination of the trypsinogen is mitigated. A few hours after the beginning of the disease, the plasmatic concentration of the PNM-elastasis is increased especially for the patients that have a severe acute pancreatitis afterwards. The monocytes and the macrophagos synthesises and sets free many active substances like

interleuchines. An important role is that of the 6<sup>th</sup> interleuchine because it determines the induction of the synthesis in the liver of the proteins of the acute phase. In acute pancreatitis the increase of the reactive protein is due to the stimulation of the hepatocytes by the cytochines. For the patients with severe acute pancreatitis we could see a decrease of the concentration of the circulation of antitrombine III and peptide C, of the inhibitor of the plasminogen activator and of the inhibitor of the  $\alpha$ 2-plasmina, of precalicreina and kinogen.

Ranson and Balthazar have classified the signs of the tonodensitometry:

- Stage A: normal pancreas
- Stage B: the increase in volume of the pancreas with the conservation of the frame of the gland
- Stage C: inflammation of the pancreas and of the peripancreatic fat with the lost of the frame
- Stage D: the presence of a peripancreatic collection
- Stage E: the presence of many peripancreatic collection of fluids and from a distance of the pancreas

The Ranson and Glasgow scores of the prognosis have no value until the first 24-48 hours from the beginning.

*Table 1.*

Admission O hour	Criteria	Ranson Score P.A.alcoholic	Ranson Score P.A.biliary	Glasgow Score
	Age	> 55 years	> 70 years	> 55 years
	glycaemia	> 11mmol/l	> 12 mmol/l	> 10 mmol/l
	LDH	> 300 UI/L	> 1,7 X N	> 1,5 X N
	ASAT	> 250 UI/l	> 9 X N	
	urea			>16 mmol/l
	Pa O <sub>2</sub>			< 60 mmHg
	calcemia			< 2 mmol/l
	albumina			< 32 g/l
Between O and 48 hours	Decrease of hematocrite	> 10%	> 10%	
	Increase of the sanguine urea	>1,8 mmol/l	> 0,7 mmol/l	
	calcemia	< 2 mmol/l	< 2 mmol/l	
	Pa O <sub>2</sub>	< 60mmHg	< 60 mmHg	
	Deficit of base	> 4mEq/l	> 5 mEq/l	
	Sequestration of fluids	> 6 litri	> 4 litri	

### Imrie scores.

Table 2.

age	> 55 years
Leucocytosis	> 15.000 mm <sup>3</sup>
Glicemia	> 10 mmol/l
Sanguine urea	< 16 mmol/l
Pa O2	< 60 mmHg
calcemia	< 2 mmol/l
Albuminemia	< 32 g/l
LDH	> 600 UI/l
ASAT-ALAT	> 100 UI/l

### **THE PURPOSE OF THE PAPER.**

The purpose of the paper is the evaluation from the point of view of the diagnosis of severity of the acute pancreatitis.

### **MATERIALS AND METHOD**

For this paper we made a study with a group of 50 patients from the total of 269 of patients from the Surgery section of Clinical County Hospital from Oradea in the period of 2005-2009.

### **RESULTS AND DISCUSSIONS**

The early identification of the degree of severity is a key factor in approaching the acute pancreatitis. The consideration of the severity of the pancreatitis is made on some standards with the help of the severity scores, the biological markers and the imagistic explorations.

The first system of scoring applied in the acute pancreatitis has been created by Ranson and has 11 clinical and analytical objective measurements in the first 48 hours from the disease.

We considered as severe acute pancreatitis all the cases with C, D or E Balthazar scores. More precise is the severity index CT (CT Severity Index) which combines the Balthazar score with the degree of extension of the pancreatic necrosis, giving the score according to the extension of the necrosis: no necrosis=0 points, 33% necrosis=2 points, 50% necrosis=4 points and > 50% necrosis=6 points with a prognosis in conformity with the table (Table 3).

### Balthazar score

Table 3.

No. of cases	Stage C	Stage D	Stage E
50	24	17	9
%	48	34	18

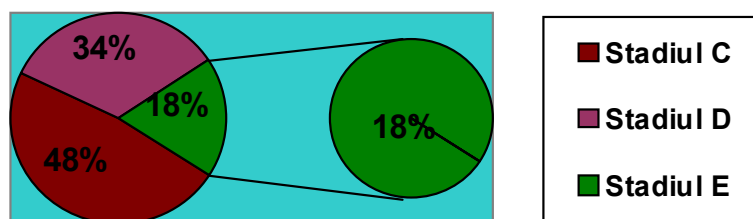


Fig. 1

### CONCLUSIONS

1. The consideration of the severity of the pancreatitis is made on some standards with the help of the severity scores, the biological markers and the imagistic explorations.
2. The criteria for the establishing of the diagnosis of acute pancreatitis are:
  - the Ranson and APACHE II bioclinical scores
  - the presentation of the insufficiencies of the organs and systems
  - the computerized tomography and the Balthazar score
  - the presence of the local evolutional complications
3. The Ranson score covers only the first 48 hours, insufficient in the case of the patients who came late and for their observance in the dynamics. The APACHE II score permits the observance of the evolution of the patients in the dynamics for a longer period.
4. The major visceral dysfunctions present in the beginning or which appeared in the evolution represent a major criterion of gravity and not favorable prognosis.
5. All the cases with Balthazar score C, D, E are cases of severe pancreatitis.

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