

## **MANAGEMENT PROBLEMS IN THERAPEUTIC CONDUCT OF ACUTE PANCREATITIS OF BILLIARY ETIOLOGY**

**Popovici Raluca, Baldea Corina, Paul Gavril Vasile, Vilceanu Ioana**

University of Oradea, – Faculty of Environmental Protection , Gen Magheru, nr. 26

### ***Abstract:***

*Acute pancreatitis is a medical surgical emergency even from the beginning, thus being an affection with actual or potential severity. Concerning the treatment in acute pancreatitis, it has to be used immediately after the hospitalisation in the first 6 hours from the beginning.*

*The biliary litiasis is considered to have a relative incidence of approximately 50% in the appearance of acute pancreatitis. Eradication of the litiasis affection prevents other episodes of pancreatitis.*

**Key words:** acute pancreatitis, billiary, hydro-electrolytic, volemic resuscitation

### **I. MANAGEMENT PROBLEMS IN THERAPEUTIC CONDUCT OF ACUTE PANCREATITIS OF BILLIARY ETIOLOGY.**

Acute pancreatitis is a medical surgical emergency even from the beginning, thus being an affection with actual or potential severity. Concerning the treatment in acute pancreatitis, it has to be used immediately after the hospitalisation in the first 6 hours from the beginning. The best results are obtained for the patients who received immediately the treatment that is in the first 6 hours.

After establishing the diagnosis of acute pancreatitis, the compensation therapy of the large losses of liquids for these patients is the second priority. Also in case of the patients with acute pancreatitis the third priority is the secondary loses of the liquids which are important and which have severe repercussions on the function of the kidneys. If the treatment is absent or insufficient in the acute pancreatitis, this would lead to the appearance of severe hydro-electrolytic and metabolic changes, which are difficult to be corrected afterwards even in the conditions of a treatment correctly conducted. For this reason the hospitalisation of these patients is necessary with correspondent medical services, especially in the case of the severe forms with evolutional potential to grave complications.

Volemic resuscitation is based on the administration of crystalloid, albumin solutions and plasma, with monitoring of cardiac debit, of the arterial tension, of the pulse and the plasmatic constants: natrium, potassium, magnesium.

In the acute pancreatitis the volemic re-equilibration associated with oxygen therapy influences very little the disorders of the circulation that appear at the level of pancreatic micro-circulation, the appearance of the

process of pancreatic necrosis taking place even with a treatment correctly conducted in the services of advanced therapy.

## **II. PARENTERAL NUTRITION.**

Putting the pancreas in repose with removal of the oral nutrition of the patient has been for a long period of time a part of the therapy of acute pancreatitis, the energetic support being accomplished by total parenteral nutrition. Thus the patient has to wear a nasogastric tube that will be kept for a few days, less days in the easy forms of acute pancreatitis, with simple evolution, except for gastric stasis, when the tube can be taken out after a few hours.

The oral nutrition is reintroduced starting with the insertion of liquids and after the 7<sup>th</sup> day the controlled solid and liquid nutrition.

Concerning the severe forms of acute pancreatitis, they have a digestive response with parenteral nutrition and/or enteral nutrition by insertion of a nasojejunal tube. Also the enteral nutrition has a remission of the phase of acute response with the diminution of the APACHE II score with an increasing of the antioxidant capacity and a reduction of the multiple organic insufficiency.

In the average forms of acute pancreatitis, with autolimited evolution, the treatment consists of a volemic re-equilibration associated with parenteral or nasojejunal enteral nutrition, therapy with oxygen, H<sub>2</sub> inhibitors, gastric and antalgic bandages, antibiotherapy appears as an unjustified gesture in average forms.

The severe forms of acute pancreatitis are characterized by a dramatic clinical board with an evolution to complications.

The ischemic injuries of the digestive mucosa and the reperfusion injuries at the level of the spleen circulation following the compensation of the pancreatic hypovolemia with the appearance of the bacterial translocation and endotoxemia, lead to the over infection of the pancreatic necrosis.

Even from the beginning of a severe pancreatitis for a period of 48 hours there is a reduction of the pH of the gastric mucosa and an ischemia of approximately 45 minutes that stops the synthesis of Glico proteins of protection at the level of intestinal mucosa, with the absorption of the endotoxines from the intestinal lumen and the marked decrease of antiendotoxinic antibodies, Ig G and Ig M respectively.

In the therapy of a severe acute pancreatitis it is very important to establish the existence of a sterile necrosis and to determine as early as possible the moment of the appearance of the over infection.

The sterile necrotic pancreatitis appears today to be the appanage of a conservative treatment in most of the cases. Bchler and his colleagues reported a mortality of 1,8% for the cases with administration of imipenem or cilastatin, antibiotics for election in pancreatitis, H2 inhibitors, blockages of the protons pump, fractionate heparins and analgesics.

There are also many controversies today about the antibiotherapy in sterile pancreatic necrosis, especially when it contributes to the appearance of severe fungal infections.

Thus the administration of antibiotics is accomplished in the second level of evolution, with a maximum risk of over infection and the association of some antifungal preparations. At this hour it is being accepted the concept of including an early antibiotherapy in the sterile necrosis, associated with Diflucan or Ketoconazol, the risk of fungal infection being accepted versus the pancreatic over infection.

In the case of the forms of over infected necrosis, the patients will benefit from the beginning from the antibiotherapy with Imipenem or Meronem and Cilastatin, antibiotics for election because of their great pancreatic penetration, with the modification of the character of the infection, becoming predominant with Positive Gram Germs and fungi.

Infected pancreatic necrosis represents a big problem in the evolution of a pancreatitis.

From the clinical point of view, in the case of an eventual sepsa, we can take into consideration the following aspects:

1. Tachycardia with over 90 beats per minute
2. Tachipnea with over 20 respirations per minute
3. Rectal temperature under 36° C or over 38° C

Para clinically, the suspicion of the sepsa will be taken into consideration when:

1. The leucocytes decrease under 400 or over 12.000/mm<sup>3</sup>
2. The neutrophils are over 10%
3. The hyperventilation is installed with Pa CO<sub>2</sub> under 4,3 Kpa
4. The positive cultures of blood appear.

The most important risk factor in the evolution of an acute pancreatitis is represented by the existence of an infection at the level of the pancreatic necrosis, this leading to the necessity of a surgical intervention. The number of cases that develop and insufficient multiple organic evolution is larger than in the case of the pancreatic necrosis and thus in the case of the existence of sepsa, indicating the mainly the need for surgery.

Thus it will be documented by the CT exam with the contrast substance and the association of a guided puncture, having a sensibility of

over 96% in detecting the pancreatic infection. The presence of the air showed by the CT exam at the level of the areas with necrosis indicates the presence of the infection being pathognomonic for an infection with anaerobes.

From the point of view of the surgical intervention the areas with necrosis and over infected will be removed completely with the preservation of the functions of the pancreatic tissue and the efficient drainage of the pancreatic box, associated or not with the peritoneal lavage. The moment of the surgical intervention is very important because an early intervention is not efficient and so is a late intervention.

The moment of the surgery is established on the basis of the active monitoring of the patient from the clinical, biologic and imagistic point of view. The response to treatment and the general status of the patient will be decisive. Using the percutaneous drainage is efficient for evacuation of an abscess, but great limits in evacuating the diffuse necrotic tissue.

Intervention in the concept of classical surgery, in this situation, consists of a mild debridement but as complete as it is possible of the areas with necrosis, the handling being accomplished digitally with continuous aspiration of the necrotic content. Another method consists of debridement associated with packing of the pancreatic lodge and placing the PENROSE tubes with drainage for aspiration. If in a first intervention the process of necrosis could not be drained, the interative interventions appear as a rule on the first four weeks of evolution.

A very important thing regarding the interative interventions for successive debridements is the utilization of the open abdomen, using a substitution net or devices for closing the abdomen with a zipper, allowing thus, an easy access intraabdominal and assuring the prevention of the sidrome of abdominal compartment, possible anytime in any situation.

For the pancreatitis with biliary cause a special treatment is necessary.

In the severe forms of acute pancreatitis associated with icterus, significant cholestasis or cholangitis it appears necessary the utilization of ERC with endoscopic sfincterotomy in the first 48 hours from the obstruction.

Heinrich and his colleagues in a study accomplished on the basis of the data from Medline and Cochrane Library said that the therapeutic success of an acute pancreatitis consists of respecting the following rules:

1. The patients with acute pancreatitis benefit of an enteral nutrition used early.
2. In the case of pancreatitis with billiary cause the average forms will need a treatment of primary colecistectomy election, while the

severe forms need the endoscopic papilotomy and after a period of time colecistectomy.

3. The patients with necrotic acute pancreatitis will benefit of Imipenem or Meronem to avoid the overinfection.
4. The sterile necrosis is not an indication for surgical intervention but the presence of and infected necrosis is an indication of emergency intervention.

In conclusion, in the actual stage of the therapy of acute pancreatitis, the most important acquisitions are:

- energetic perfusion of the patient with full volemic and hydroelectrolitic compensation.
- utilization of the CT guided puncture in order to give a diagnostic of the pancreatic infection,
- the early enteral nutrition,
- utilization of the antibiotherapy with pancreatic tisular penetration and conservative management and surgical techniques minimum invasive.

### **III. THE PURPOSE OF THE ESSAY.**

The purpose of this essay is to analyze, from the point of view of the experience of the Clinical County Hospital from Oradea, the management problems in therapeutic conduct of acute pancreatitis.

### **IV. MATERIALS AND METHODS.**

To accomplish the study we needed the database of the Clinical County Hospital from Oradea. Also we used the retrospective method consisting of studying the observation papers of the patients from the study and we revised the imagistic documents from the archive of Clinical County Hospital from Oradea.

### **V. THE RESULTS AND DISCUSSIONS.**

The biliary litiasis is considered to have a relative incidence of approximately 50% in the appearance of acute pancreatitis.

The incidence of biliary pancreatitis varies with the ethic, cultural, geographical and alimentation conditions. In USA the incidence of the litiasis pancreatitis is represented by 90% of the total cases of acute pancreatitis.

Eradication of the litiasis affection prevents other episodes of pancreatitis.

The etiologic mechanism implies the transitory obstruction of the pancreatic duct by the presence of a calculus in the main biliary channel.

For approximately 90% of the patients, the calculi are surrounded by biliary filth in the first 10 days of crisis suggesting that the obstruction will last a short period of time and many calculi like this pass into the duodenum.

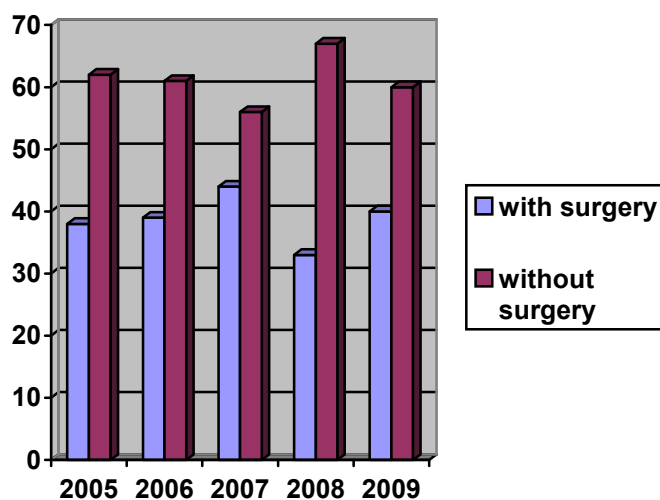
In the analyzed cases we saw that the common age for the beginning is from the middle to the end of the fourth decade and also the women are more affected than men.

**The distribution of biliary pancreatitis in years**

*Table 1*

Year	2005		2006		2007		2008		2009	
	N	%	N	%	N	%	N	%	N	%
With surgery	5	38	7	39	14	44	8	33	10	40
Without surgery	8	62	11	61	18	56	16	67	15	60
Total	13	100	18	100	32	100	24	100	25	100

In the studied cases we observed that from the 269 cases of acute pancreatitis, 112 proved to have a biliary etiology their distribution in years being presented in the table 1.



*Fig 1a.* Annual distribution of the cases with biliary acute pancreatitis, with surgery/without surgery

The annual distribution of the biliary acute pancreatitis shows the maximum incidence of the operated cases in 2007, the minimum in 2008

and intermediary in 2005-2006. In the cases without surgery the maximum incidence is in 2008, the minimum in 2007 and intermediary in 2005, 2006, 2009. Also we can observe the predominance of the case with pancreatitis without surgery.

In the case of the patients where the calculus remained inclavala, the episodes of pancreatitis became more severe and resered to the regular treatment.

This was observed at the patients with acute pancreatitis who presented calculi, increased serum concentration of bilirubin, over 4 mg/dl, increased alkaline phosphatase and the clinical evolution not favorable in the way that it does not improve within 24 hours. In this case the endoscopic sfincterectomy was indicated by ERCP by removing the calculus that can interrupt the evolution. This surgical extraction of the inclaved calculus is indicated.

For the patients with easy form of disease the treatment is less aggressive, the profilactic colecistectomy being recommended.

In severe forms of disease, beside the intensive therapeutical measures of reequilibration and systemic antibiotherapy the biliary channels have to be emptied emergently. The endoscopic approach of CBP is preferred being more bearable.

In the case the retrograde endoscopic colangiography/endoscopic sfincterectomy can not be applied for different reasons, the emergency surgery is being used especially for the patients with mechanical icterus.

It is important that all the calculi have to be evacuated, the biliary channels emptied and drained adequately no matter the surgical method used.

In all the cases the peritoneal lavage has been accomplished and the surgery was closed by a drainage procedure.

## **VI. CONCLUSIONS.**

1. The most frequent etiology of acute pancreatitis is represented by biliary affections, especially biliary litiasis.
2. The biliary litiasis presents an incidence of approximately 50% in the appearance of the acute pancreatitis.
3. O favorable factor for the appearance of the pancreatitis at a patient with biliary calculus is the age from the middle tot the end of the fourth decade.
4. Also the women are more predisposed than men to biliary pancreatitis.
5. The therapeutic success of the patients with acute pancreatitis depends on establishing the diagnosis, the determination of the severity of the pancreatitis, the application of an adequate therapy of support and the revealing of the biliary calculi.

6. In the easy forms of acute pancreatitis the patients need a conservatory treatment but the presence of the lithiasis assumes their elimination to prevent a new spur of pancreatitis.
7. The early identification of the biliary calculi present a special importance for the patients with severe forms of pancreatitis that need a profilactic antibiotherapy and the immediate evacuation of the biliary channels.
8. The endoscopic approach of CBP is preferable, being easily supported and not being conditioned by the situation of the patient.

## VII. REFERNCES.

1. **Angelescu Nicolae**, 2003, A study of surgical pathology, Medical Publishing House, Bucharest,
2. **Anglade, D.**, C. Letoullou , Y. Russier, 1993, *It is useful to mainturin specific score for early determination of the severity of acute pancreatitis*, Ann. Chir. Bradley, EL III - A Clinically based classification system for acute pancreatitis. Summary of the international Symposium on Acute Pancreatitis. Arch. Surg., 128:516.
3. **Anand BS.**, 1998, Complications of acute pancreatitis. Trop Gastroenterol 19; 6-11
4. **Acestin J.**, HA. Reber, 1986, The pathologic feature of acute pancreatitis. In: Howard J., Jordan G., Reber HA (eds) - Surgical diseases of the pancreas. Philadelphia Lea and Febriger
5. **Axelsson L.**, M. Bergenfeldt, P. Bjork, 1990, Release of immunoactive canine leucocyte elastase normally and in endotoxin and pancreatic shock - Scand J Clin Lab Invest,; 50: 35-42.
6. **Baron**, T.H., D.E. Morgan, 2000, Acute Necrotizing Pancreatitis. N. Engl. J. Med., 1999, 340:1412. 125: 325-333.
7. **Beger**, H.G. - Sepsis in necrotizing pancretitis - definition, pathophysiology and prognosis. În "Intraabdominal sepsis, Proceedings of the First International Humbold Workshop on Surgical Researche". Bucharest, May 5-7, 2 Beger, H.d., Buchler, M.
8. **Bittner**, R., S. Block, , T. Nevelainen, , R. Rasher, 1988, Necrosectomy and Postoperative Local Lavage in Necrotizing Pancreatitis. Br. J. Surg. 75:207.
9. **Bradley**, EL III, 1991, Operative Management of the Acute Pancreatitis: Ventral Open Packing. Hepatogastroenterol., 40:563. 005, pag. 141-142
10. **Baron**, T.H., 2003, Endoscopic Drainage of Pancreatic Fluid Collections and Pancreatic Necrosis - Gastrointest. Endosc. Lin. N. Am.,13:743.
11. **Balthazar**, E.J., 1997, *Acute pancreatitis: assessment of severity with clinical and CT evaluation*, Radiology 2002, 223: 603-613.3. Banks, P.A., *Practice guidelines in acute pancreatitis*, Am. J. Gastreterol., 92: 377-386.
12. **Caloghera C**, 1993, Emergency surgery, Antib Publishing House, Timisoara.
13. **D'Egido**, M. Shien, 1991, Surgical strategies in the treatment of pancreatic necrosis and infection. Br. J. Surg., 78:133.