

CLINICAL STUDY

Selected indicators of care in patients with acute pancreatitis in the Slovak Republic

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Abstract: *The aim of this study was to state the standard of care in patients with acute pancreatitis in the surgical wards in the Slovak republic and compare the results to the European study. We sent out 57 questionnaires to surgical wards and received 34 back (59.65 %).*

Results: *Most wards treat 51–60 patients per year (20.59 % of wards). C-reactive protein (CRP) was mainly used as a stratification system (85.29 %), followed by clinical assessment (79.41 %). Only 41.18 % of wards use antibiotic prophylaxis and primary CT indicated only 29.41 % of the Slovak wards. Non improvement of clinical state is as indication for repeated CT in 100 %. Only 11.76 % of wards in the Slovak republic use fine needle aspiration (FNA) to confirm infection of pancreatic necrosis. The surgical intervention was mostly (76.47 %) indicated in patients with organ dysfunction and sepsis, while according to 38.24 % of wards, the optimal time for intervention is between 15th and 21st day after disease onset. 44.12 % of wards would treat pancreatic abscess by surgical evacuation and consecutive closed lavage, pancreatic necrosis would treat identically 50 % of participating wards (Fig. 6, Tab. 4, Ref. 14). Full Text in free PDF www.bmj.sk.*

Key words: *selected indicators, acute pancreatitis, surgical wards.*

Acute pancreatitis is defined as an acute, reversible, inflammatory process that encompasses pancreas, peripancreatic tissue and sometimes also distant organs. It covers a spectrum of disease from light to rapid, progressive, and fulminant form with MODS (Multiple Organ Dysfunction Syndrome), with or without sepsis.

Approximately 80–90 % of cases have light course with low morbidity and mortality and do not pose a therapeutic problem. Severe Acute Pancreatitis (SAP), on the other hand, is associated with complications that can be local or systemic. SAP passes in two phases – early toxic and late septic, the latter one takes the greatest part in the high mortality of the disease – mortality of an infected necrosis is up to 62 % (2).

The effort to assess the gravity of acute pancreatitis to choose the optimal method of therapy is made after the admission and initiation of conservative therapy. Aside from the clinical picture, other indicators can be helpful as well. These are either isolated markers of severity of disease (C-reactive protein, procalcitonin) or multifactorial scoring systems (Ranson and Glasgow Criteria, universal indicators of severity of disease – APACHE II score) (7, 8, 13). Aside from the biochemical and haematological parameters, morphological CT picture with Balthasar classification (1) assessment is appropriate.

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The active conservative treatment dominates the therapy, having reached the optimal standard with strongly enhanced possibilities for the disease assessment (4, 5). The main components of conservative treatment are: securing secretory standstill of the gland, analgosedation, fluid therapy with sufficient volume substitution for the correction of hypovolemia, and cardiopulmonary support with recognition of hidden hypoxemia. The prevention of infection is essential, with metabolic and nutritional support, and enteral nutrition being preferred. The Endoscopic Retrograde Cholangiopancreatography (ERCP) and Endoscopic Papillosphincterotomy (EPS) with stone extraction is appropriate in indicated cases with biliary etiology.

In specific circumstances, the conservative treatment is insufficient and an aggressive, surgical treatment is needed. Surgical intervention is indicated especially in infectious complication of necrotising pancreatitis, such as infected necrosis, pancreatic abscess or infected pseudocyst. The infection of necrosis can be expected in 40–70 % (5). Other indications of surgical intervention are signs of persistent acute abdomen, sterile necrosis and persistent or increasing local complications – bleeding, ileus, gut perforation and abdominal compartment syndrome (ACS).

A big amount of international meeting was held for the unification of procedures, beginning with the Conference of Atlanta in 1992 (3). The most important meetings and sittings are in following table (Tab. 1).

There is a significant amount of review articles in literature that were initialized by the International Association of Pancreatology (IAP), dealing with problems on therapy of critically ill patients with acute pancreatitis. They state actual questions on

Tab. 1. Important meetings and conferences of professional societies on acute pancreatitis.

Meeting	year
Atlanta Symposium	1992
Santorini Consensus Conference	1999
German Consensus Conference	2000
World Congress of Gastroenterology	2002
International Association of Pancreatology	2002
Japanese Society of Abdominal Emergency Medicine	2002
International Consensus Conference	2004
British Society of Gastroenterology	2005

recommendations on different levels of significance (4, 10). Likewise, a large amount of papers with recommendations for the treatment of acute necrotising pancreatitis (9) have been published. The implementation of recommended treatment into praxis was the subject of another amount of works. The German study from 2007 (12) showed that regardless of implementation of general guidelines there are methods used, for which there is no general consensus.

62 % of questionnaires were returned, 11 % strictly adhered to IAP guidelines, 31 % adhered to all but one guideline, 31 % of

respondents didn't follow more than 2 guidelines, and, depending on answers, 27 % of respondents' practice differs from guidelines.

In 2004 a work was published, where authors mapped the situation in European members of International Association for Hepato-Bilio-Pancreatic Surgery (IHBP). 866 members were addressed, 329 questionnaires (38 %) were returned (11).

Material and methods

The aim of the work was to assess the care of patients with acute pancreatitis on surgical wards in the Slovak Republic and to compare the results to above stated study.

We sent out 57 questionnaires to the surgical wards in the Slovak Republic, that were assumed to have experience in the treatment of acute pancreatitis. Of 57 sent questionnaires 34 returned, which is 59.65 %.

Results

Question 1 – How many patients with acute pancreatitis do you treat yearly?

The amount of patients with acute pancreatitis treated varied, most ward treated 51–60 patients per year (more than 20 %).

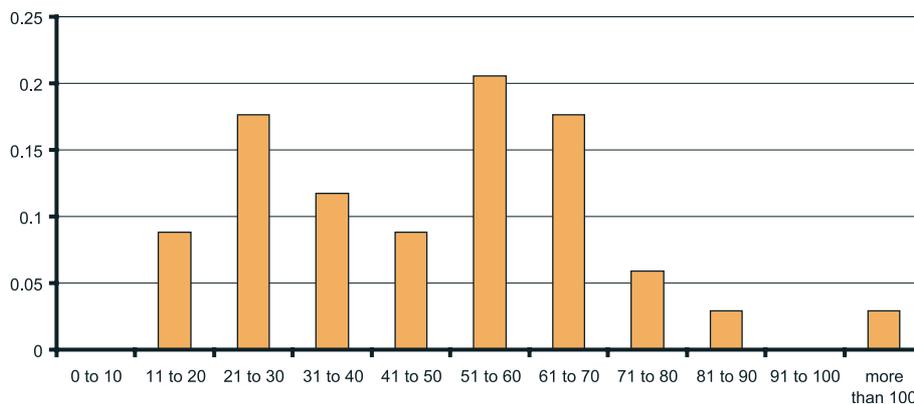


Fig. 1. How many patients with acute pancreatitis do you treat yearly?

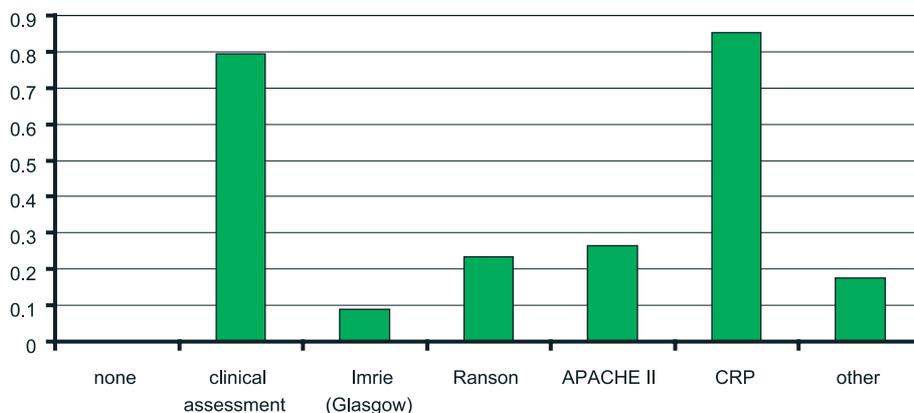


Fig. 2. Which stratification system do you regularly use?

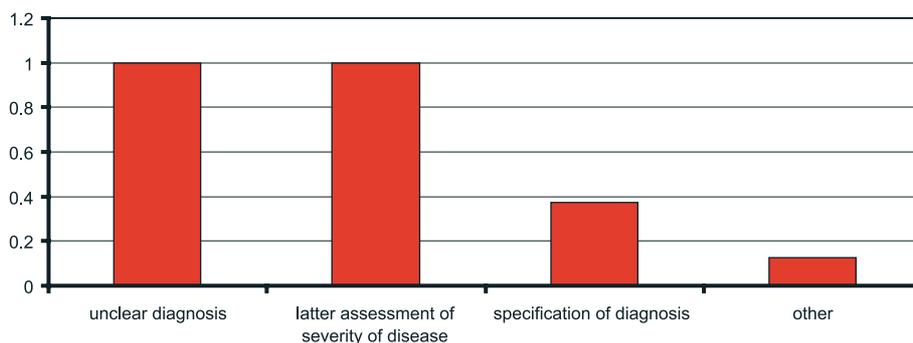


Fig. 3. What are criteria for realisation of early CT?

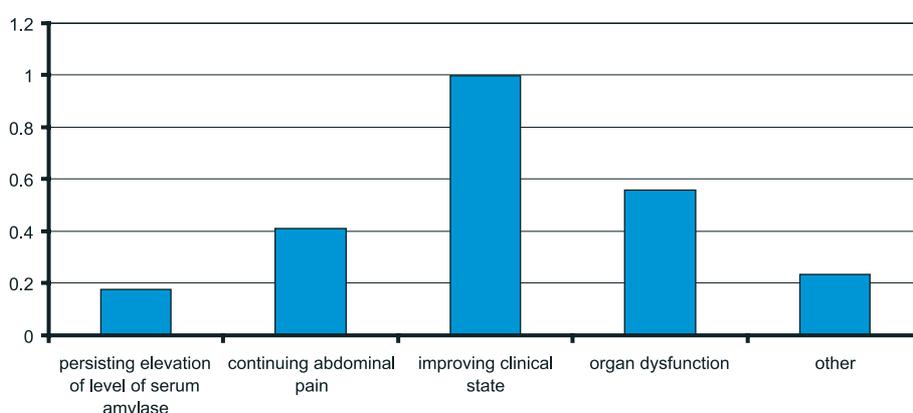


Fig. 4. What are indications for repeated CT?

Stratification of amount of patients hospitalized is in Figure 1.

Question 2 – Which stratification system do you regularly use?

85 % of wards used CRP for the assessment of gravity of acute pancreatitis, 79 % used the clinical assessment, multifactorial systems (Ranson, Glasgow, APACHE II) were used scarcely. Systems of stratification are in Figure 2.

Question 3 – Do you administer prophylactic antibiotics?

41.2 % of wards administer prophylactic antibiotics, the rest (58.8 %) of wards do not administer prophylactic antibiotics.

Question 4 – Which antibiotics do you use?

Summary of antibiotic used prophylactically is in the Table 2.

Question 5 – Do you use early (up to 72 hours) CT in all patients?

Early CT (up to 72 hours) is used in 29.4 % of wards, the rest (70.6 %) of wards do not use early CT.

Question 6 – What are criteria for realisation of early CT?

Indications for early CT are unclear diagnosis, assessment of severity of the disease, and specification of diagnosis (Fig. 3).

Question 7 – Do you use i.v. contrast in the early CT?

79.4 % of wards use i.v. contrast in the early CT

Question 8 – What are the indications for the repeated CT?

The main indications for the repeated CT are non improving clinical state, organ dysfunction and continuing abdominal pain (Fig. 4).

Question 9 – What is the time interval between the CT controls?

In 76.5 % of cases, no fixed time was used, the rest of CT were done in under 10 days.

Question 10 – Do you use FNA (Fine Needle Aspiration) in diagnosis of infected pancreatic necrosis?

Only 11.8 % of wards use FNA for the confirmation of infected pancreatic necrosis.

Question 11 – Do you always operate on patient with pancreatic infection, which is confirmed by FNA?

75 % of wards operate on base of the positive FNA finding.

Question 12 – Which patients with acute pancreatitis are indicated for operation?

Tab. 2. Antibiotic prophylaxis in SAP (Severe Acute Pancreatitis)

ATB	7–10 days	14 days
3rd generation cephalosporins	3 x	1x
Chinolons	2 x	3 x
2nd generation cephalosporins	1 x	1x
2nd generation cephalosporins+gentamicin		1x
Cephalosporins unspecified	1 x	
3rd generation cephalosporins+gentamicin	1 x	
Imipenem	1 x	

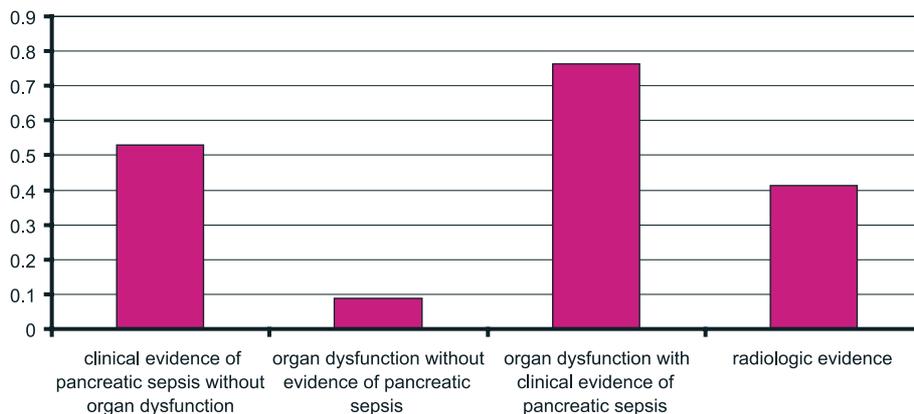


Fig. 5. Which patients with acute pancreatitis are indicated for operation?

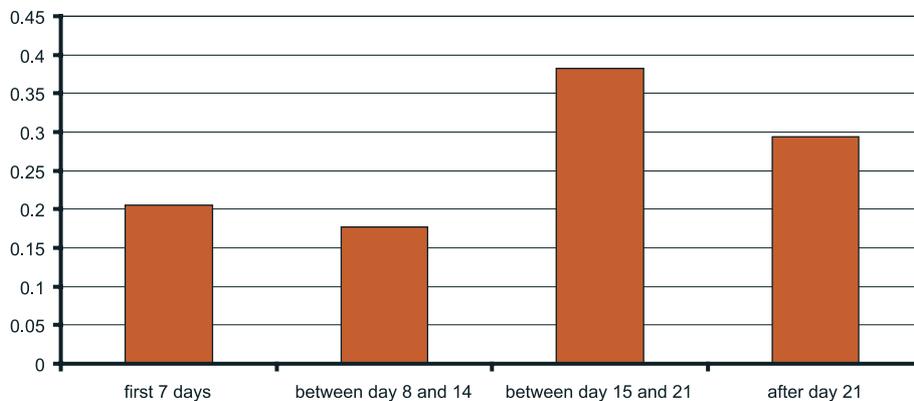


Fig. 6. What is the optimal time for surgical intervention?

Indications for operation and their stratification are shown in the Figure 5. The main indication was organ dysfunction with clinical evidence of pancreatic sepsis. Less frequent indications were evidence of pancreatic sepsis without organ dysfunction and radiologic evidence of infection of pancreatic necrosis (Fig. 5).

Question 13 – What is the optimal time for surgical intervention?

Most patients were operated between 15th and 21st day (38.24%), 29.41% were operated on after 21 days. The conclusion is that almost 70% of wards consider the optimal time for surgical intervention after 15 days of onset of disease. 20.59% of patients were operated on in the first 7 days (Fig. 6).

Question 14 – What is your preferred technique in treatment of pancreatic abscess?

Tab. 3. Overview of techniques used in treatment of pancreatic abscess and their preferences.

Technique	Preference
Surgical drainage and closed lavage	44, 1 %
Percutaneous drainage	38 %
Endoscopic therapy	11, 8 %
Surgical drainage and laparostomy	5, 8 %

Preferred technique in the Slovak surgical wards in the treatment of pancreatic abscess is surgical drainage and closed lavage. Overview of techniques is in Table 3.

Question 15 – What is your preferred technique in the treatment of pancreatic necrosis?

Overview of preferences and techniques used is in Table 4.

Discussion

The results of comparison between the Slovak and European study are following: Generally, more than 20% of wards treat 51–60 patients with acute pancreatitis yearly, which is several times higher than in Europe (11–20 patients yearly).

Despite many multifactorial stratification systems for the assessment of severity of the disease exist, 85.29% of Slovak wards use C-reactive protein for the assessment, followed by the clinical evaluation of patient. The most often used stratification system in Europe is the Ranson criteria. These, though, in many aspects do not stand up for current needs of stratification.

The role of prophylactic use of antibiotics has been questioned in last years. In the metaanalysis (14), these do not lower mortality nor the septic complications. In the European study, 73% of respondents did administer antibiotics as prophylaxis,

Tab. 4. Overview of techniques used in treatment of pancreatic necrosis and their preferences.

Techniques	Preference
Surgical drainage and closed lavage	50 %
Staged surgical drainage	26, 5 %
Surgical drainage and laparotomy	11, 8 %
Percutaneous drainage	5,9 %
Conservative treatment (no intervention)	3 %
Endoscopic therapy	2, 9 %
Formal resection	0 %

probably because it has been done in 2004. 41.18 % of the Slovak wards used prophylactic antibiotics, mostly cephalosporins.

The rates of use of CT were similar in Europe and in Slovakia. Examination is accessible, used for primary assessment of pancreatitis as well as for the assessment of course of the disease. In both studies, a variety of answers, concerning the timing and indications for the repeated CT in non-improving course of disease occurred. 100 % of respondents considered non improvement of clinical state as indication for the repeated CT despite declared radiation load.

The fine needle aspiration (FNA) is recommended for the confirmation of infection of pancreatic necrosis and serves as an important indicator for surgical intervention. Only 11.76 % of the Slovak wards use FNA, while in the European setting 53 % (11). 75 % of wards indicate operation on basis of positive cultivation in FNA.

The surgical intervention in the Slovak wards was mostly (76.47 %) indicated in patients with organ dysfunction and sepsis. The optimal timing for intervention was stated between day 15 and day 21 after disease onset in 38.24 % of ward, intervention after day 21 was advocated in 29.41 % of wards. More than two thirds of respondents in Slovakia regard the optimal time for intervention not earlier than 15 days after disease onset, which is concordant with recommendations in literature (6). In the European study, the same amount of respondents state the optimal intervention before and after day 14.

44.12 % of Slovak surgical wards would treat a pancreatic abscess surgically with concomitant closed lavage, identically would solve a pancreatic necrosis 50 % of responding Slovak surgical wards.

There was a spectrum of therapeutic opinions in pancreatic necrosis presented in the European study. In spite of evidence that formal pancreatic resections carry a high mortality, it was surprising that 2 % of respondents prefer this type of treatment of pancreatic necrosis. The unexpected results were non-operative treatment of FNA confirmed infected necrosis and formal pancreatic resection. According to European authors, the interpretations of results could be marked with incomplete answers, idealised answers (what would I do rather than what I do), and preferred answer of respondents (to be concordant with questionnaire). According to our opinion, the results of the Slovak study could be biased by similar mistakes.

Conclusions

- most often used stratification systems are CRP (C-reactive protein) and clinical assessment,
- prophylactic use of antibiotics is controversial, which fits situation in the world,
- not unified opinions on primary CT and repeated CT, low utilisation of FNA (Fine needle aspiration) for identification of infected pancreatic necrosis,
- indications for operation and timing of operation is similar to current opinions,
- preferred technique for the treatment of infected necrosis and pancreatic abscess is surgical necrosectomy with closed lavage.

References

1. **Balthazar EJ.** Imaging and intervention in acute pancreatitis. *Radiology* 1994; 193 (2): 297–306.
2. **Banks PA, Freeman ML.** Practice Guidelines in acute pancreatitis. *Amer J Gastroenterol* 2006; 101: 2379–2324.
3. **Bradley EL.** A Clinically Based Classification System for Acute Pancreatitis. Summary of the international Symposium on Acute Pancreatitis, Atlanta, GA, Sept. 11–13, 1992. *Arch Surg* 1993; 128 (5): 584–590.
4. **Sarr MG.** IAP Council Guidelines in Acute Pancreatitis. So what? *Dig Surg* 2003; 20 (1): 1–2.
5. **Hollender LF, Lehnert P, Wanke M.** Akute Pankreatitis – Eine multidisziplinäre Synopsis. Leipzig, J.A. Barth, 1984, 175 pp.
6. **Fernández-del Castillo C, Rattner DW, Makary MA, Mostaf A, Warsaw AL.** Débridement and closed packing for the treatment of pancreatitis. *Ann Surg* 1998; 228 (5): 676–684
7. **Imrie CW, Benjamin IS, Ferguson JC et al.** A single centre double blind trial of trasyolol therapy in primary acute pancreatitis. *Br J Surg* 1978; 65: 337–341.
8. **Knaus WA, Draper EA, Wagner DP, Zimmerman JE.** APACHE II: a severity of disease scoring system. *Crit Care Med* 1985; 13 (10): 818–829.
9. **Uhl W, Warsaw A, Imrie C, Bassi C, McKay CJ, Lankisch PG, Carter R, DiMagno E, Banks, PA, Ghaneh P, Hartwig V, Werner J, McEntee G, Neoptolemos JP, Buechler MW.** IAP Guidelines for the Management of Acute Pancreatitis. *Pancreatol* 2002; 2: 565–578.
10. **Nathens AB, Curtis JR, Beale RJ, Cook DJ, Morene RP, Romand JA, Sherett SJ, Stapleton RD, Ware LB, Waldemann CS.** Management of the critically ill patients with severe acute pancreatitis. *Crit Care Med* 2004; 32 (12): 2524–2536.
11. **King NKK, Siriwardena AK.** European Survey of Surgical Strategies for the Management of Severe Acute Pancreatitis. *Am J Gastroenterol* 2004; 719–725.
12. **Foitzik T, Klar E.** (Non)-Compliance with Guidelines for the Management of Severe Acute Pancreatitis among German Surgeons. *Pancreatol* 2007; 7: 80–85.
13. **Ranson JH, Rifkind KM, Turner JW.** Prognostic signs and non-operative peritoneal lavage in acute pancreatitis. *Surg Gynecol Obstet* 1976; 143 (2): 209–219.
14. **Mazaki T, Ishii Y, Takayma T.** Meta-analysis of prophylactic antibiotic use in acute necrotising pancreatitis. *Br J Surg* 2006; 93 (6): 674–684.

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