

ISSN 2786-8311 (Print)
ISSN 2786-832X (Online)

Association of Surgeons of Ukraine
Shalimov National Scientific Centre
of Surgery and Transplantology

The Ukrainian Journal of Clinical Surgery

Vol 92, Issue 4 (July/August) 2025

Bimonthly Scientific and Practical Magazine
(specialist edition for doctors)
Founded in June 1921

Editor in Chief
O. USENKO

Vice-editors
S. ANDREIESHCHEV, M. KOSTYLIEV

Editorial board
L. ANGRISANI (Italy), J. BENEDIK (Germany),
L. BILIANSKIY, S. VOZIANOV,
M. FRIED (Czech Republic), H. FRIESS (Germany),
V. HETMAN, O. DRONOV, H. KOZYNETS,
V. KOPCHAK, A. LAVRYK, V. LAZORYSHNETS,
I. LURIN, J. MELISSAS, (Greece),
S. SAVOLYUK, A. SKUMS, I. KHOMENKO,
V. TSYMBALIUK, R. WEINER (Germany)

Editorial team
V. ANDRIUSHCHENKO, Ya. BEREZNYTSKYI,
V. BOIKO, M. VELYHOTSKYI,
M. ZAKHARASH, B. ZAPOROZHCHENKO,
I. IOFFE, P. KONDRATENKO,
I. KRYVORUCHKO, V. LUPALTSOV,
O. NYKONENKO, V. PETRUSHENKO,
V. RUSYN, A. SUKHODOLIA, Ya. FELESHTYNSKYI,
S. SHALIMOV, S. SHAPOVAL, I. SHEVCHUK

Included in the Register of Media Subjects
on September 14, 2023.
License ID/Number R40-01319

Included in the list of scientific professional
publications in Ukraine
(Decree of Ministry of Education and Science
of Ukraine No. 1301/15.10.2019)

Publisher allows authors to retain their copyrights.
No part of the publications may be reproduced
without prior permission of the Publisher

All authors take public responsibility
for the content presented in the manuscript

All advertisements are published
on the warranty of the agency and advertiser
that both are authorized to publish
the entire contents and subject matter
of the advertisement

© The Ukrainian Journal of Clinical Surgery, 2025
© Liga — Inform, 2025

CONTENS

GENERAL PROBLEMS OF SURGERY

- Usenko O. Y., Simonov O. M.**
The use of omental flap in the prevention of inflammation
after pancreaticoduodenectomy 3-10
- Motelchuk S. O., Lytvyn O. I.**
Comparative analysis of the effectiveness of manual and mechanical methods
of duodenoenteroanastomosis formation in pancreaticoduodenectomy
with preservation of the gatekeeper 11-14
- Shevchuk I. M., Kuzenko R. T., Snizhko S. S., Novytskyi O. V., Shapoval A. L.**
Features of surgical treatment of hypertriglyceride-induced acute pancreatitis 15-19
- Zinovenko R. V., Zavgorodnyi S. M.**
Effectiveness of conservative and surgical treatment of acute pancreatitis
of severe nutritional etiology 20-24
- Bababeyli E. Y.**
Effectiveness of local and intravenous ozone therapy in minimally invasive
treatment of liver abscesses 25-29
- Langazo O. V., Kustrio V. I.**
Sleeve colostomy in the surgical treatment of patients with acute obstructive
colon obstruction 30-33
- Lupaltsov V. I., Chumachenko T. O.**
Perioperative antibiotic prophylaxis of infections in abdominal surgery:
evidence-based medicine and current trends 34-39
- Shudrak E. A., Horodetskyi A. V., Dibrova Y. A., Shudrak A. A.,
Kondratskyi Y. M., Koval N. O., Dobrzhanskyi O. Y., Kolesnyk A. V.,
Pepenin M. O., Kozak E. O., Turchak V. O.**
Treatment outcomes and quality of life of patients after esophagectomy
with simultaneous reconstruction using different gastric grafts 40-44
- Zakharychev V. D., Hordiychuk P. I., Borysiuk B. O.**
Long-term survival of patients after multimodal treatment of stage IIIA(N2)
non-small cell lung cancer 45-49
- Poliachenko Y. V., Kostrub O. O., Dolgoplov O. V., Blonsky R. I.,
Vorona A. O., Zinchenko V. V.**
Effectiveness of organ-preserving surgical interventions in patients
with consequences of mine-blast wounds of the elbow joint 50-55

REVIEWS

- Usenko O. Y., Tyvonchuk O. S., Vinogradov R. I., Vladymirenko Y. A.**
The "open abdomen" method: history of development, evolution of approaches
and modern tactics 56-66
- Iskra N. I., Guryev S. O., Kushnir V. A., Dyrda O. O.**
Selected aspects of etiology, pathogenesis and treatment of acute pancreatitis
and its complicated forms 67-72

BRIEF COMMUNICATIONS

- Kopchak V. M., Pererva L. O., Azadov P. A.**
The first in Ukraine "Triangle" operation (pancreaticoduodenectomy)
for malignant tumor of the pancreatic head 73-76
- Lyakhovskiy V. I., Skrypnyk H. Y., Bezkorovainyi O. M., Borkunov A. L.,
Sydorenko A. V., Shcherban D. A.**
Successful treatment of giant trophic ulcer of the lower leg of arterial genesis 77-81

OBITUARY

- Zaporozhchenko Borys Serhiiovych** 82-83

Effectiveness of conservative and surgical treatment of acute pancreatitis of severe nutritional etiology

R. V. Zinovenko^{1,2}, S. M. Zavgorodnyi¹

¹Zaporizhzhia State Medical and Pharmaceutical University,
²Zaporizhzhia City Hospital of Emergency and Ambulance Care

Ефективність консервативного та оперативного лікування гострого панкреатиту тяжкого ступеня аліментарної етіології

Р. В. Зіновенко^{1,2}, С. М. Завгородній¹

¹Запорізький державний медико-фармацевтичний університет,
²Запорізька міська лікарня екстреної та швидкої медичної допомоги

Abstract

Objective. To analyze the results of treatment of patients with severe acute pancreatitis of alimentary etiology.

Materials and methods. The retrospective analysis included 35 case histories of patients with severe acute pancreatitis of alimentary etiology who were treated in the surgical departments of the Zaporizhzhia City Emergency and Ambulance Hospital from January 2023 to September 2024.

Results. Against the background of the treatment, 29 (82.86%) patients were discharged with improvement for continuation of conservative therapy and observation in outpatient settings. Six (17.14%) patients died. Among the deceased, 5 (83.33%) underwent surgical treatment. Postoperative mortality in severe acute pancreatitis of alimentary etiology was 31.25%, while mortality in unoperated patients was 5.26% ($p = 0.0048$, $U = 112.5$).

Conclusions. Treatment of patients with severe acute pancreatitis of alimentary etiology based on a personalized approach using multisurgical methods combined with individually targeted conservative therapy will have better results, which will be reflected in a reduction in the frequency of postoperative complications and mortality rates.

Keywords: severe acute pancreatitis; alimentary etiology; conservative treatment; surgical treatment.

Acute pancreatitis (AP) remains a pressing problem in surgery. Among acute surgical diseases of the abdominal cavity, it ranks second after acute appendicitis in terms of the frequency of calls for medical assistance [1]. Epidemiological studies over the past decade show an increase in the incidence of AP, especially of alimentary etiology (abuse of predominantly fatty foods and/or alcohol) [2]. According to various sources, only 60–70% of patients receive conservative therapy [3, 4]. Approximately 70–80% of patients have a favorable prognosis, while 20–30% have a severe or very severe course of the disease requiring complex and prolonged treatment [5].

According to the updated classification of the Atlanta Group (Revised Atlanta classification of acute pancreatitis, 2012), a diagnosis of severe acute pancreatitis is established in the presence of transient/persistent pancreatic insufficiency with local or systemic complications [6]. Despite the progress made in the diagnosis of the disease, intensive care, and surgical treatment using minimally invasive surgery (this technique is used in approximately 40% of patients [7]), the postoperative mortality rate in AP remains high at 10–30% [8]. The question of finding the most favorable timing for

surgery remains relevant. Given the multifaceted nature of the pathology itself and the diversity of patients with pancreonecrosis, the concept of the optimal timing of surgery is based not on the time elapsed since the onset of the disease, but on an objective understanding of what is happening in the focus of the disease and in the body as a whole at this time in this patient. In other words, the timing of surgery is determined by indications that may arise at any stage of the disease [9, 10].

The debate on the determination of indications for surgical intervention in acute pancreatitis and the timing of its performance continues.

The aim of the study was to analyze the results of treatment of patients with severe AP of alimentary etiology.

Materials and methods

A retrospective analysis of 35 (100.0%) case histories of patients with severe acute pancreatitis of alimentary etiology who were treated in the surgical departments of the Zaporizhzhia City Emergency and Ambulance Hospital from January 2023 to September 2024 was performed.

Criteria for inclusion of patients in the study: age 25 to 65 years, severe acute pancreatitis of alimentary origin. Criteria for exclusion of patients from the study: acute pancreatitis against a background of oncological disease, acute pancreatitis of any other etiology except alimentary.

Men predominated in the study group – 27 (77.14%), women were 8 (22.86%). The age distribution of patients was as follows: 25 to 45 years (young age) – 19 (54.29%), 45 to 60 years (middle age) – 12 (34.29%), 60 years and older (elderly) – 4 (11.43%). The average age of patients was (45.0 ± 7.82) years.

All patients were hospitalized on an emergency basis. Diagnosis and treatment were carried out in accordance with the clinical protocol for the provision of medical care to patients with GP at the Zaporizhzhia City Emergency and Ambulance Hospital dated March 4, 2019.

The algorithm for examination and treatment of patients according to the standard protocol is as follows.

Examination of patients during hospitalization: complete blood count using the Mythic 18 automatic hematology analyzer (Orphee S.A., Switzerland), biochemical blood test with assessment of electrolyte balance, kidney and liver function, blood alpha-amylase on an automatic analyzer Vitalab Flexor E FLEX (Poland).

Instrumental examination methods: ultrasound examination (US) of the abdominal organs using a Samsung HS40 device (South Korea), overview X-ray of the chest and abdominal organs using the REX-650RF X-ray diagnostic system (, South Korea), video esophagogastroduodenoscopy (VEGDS) using an Olympus GIF-H170 device (Japan), computed tomography (CT) of the abdominal organs with intravenous contrast using a Toshiba Astelion 16 device (Japan).

According to the medical history, 25 (71.43%) patients had severe PE due to excessive consumption of fatty foods, and 10 (28.57%) due to alcohol consumption.

AP was classified according to the updated Atlanta classification of 2012. The severity of AP was assessed using the Glasgow-Imrie scale (Modified Glasgow Imrie Severity Criteria for Acute Pancreatitis, Clem. W. Imrie, 1984).

For statistical evaluation of the study results, Statistica 13.0, TIBCO Software inc. (license JPZ804I382130ARCN10-J) and Microsoft Excel 2013 (license 00331-10000-00001-AA404) and parametric and nonparametric criteria.

The statistical significance of differences in indicators between groups was determined using nonparametric statistical analysis methods: the Mann-Whitney U test for independent groups. The data are presented as $M \pm SD$ (mean \pm standard deviation) in the case of normal distribution of the studied characteristic and Me (sample median) with indication of the upper (Q1 75%) and lower (Q3 25%) quartiles in the case of distribution different from normal. Results were considered statistically significant if p values were less than 0.05.

Results

The medical history shows that 10 (28.57%) patients were admitted to the clinic within 24 hours of the onset of the dis-

ease, 12 (34.29%) within 1 to 3 days, 7 (20.00%) on the 3rd to 7th day, and 6 (17.14%) later than the 7th day.

Thus, the vast majority of patients were hospitalized within 3 days of onset – 62.86%. It is important to note that 28.57% of patients sought medical help within the first day of the disease. This indicates its acute onset and severe pain syndrome, as well as the ineffectiveness of conservative treatment and pain relief at home.

According to the Glasgow-Imrie prognostic criteria, severe GP was diagnosed in all 35 (100.0%) patients.

According to the updated Atlanta 2012 classification, moderate GP was not diagnosed in any patient, moderately severe GP was detected in 20 (57.14%) patients, and severe GP was detected in 15 (42.86%) patients.

All patients underwent additional examination according to the standard protocol in the hospital emergency room within (1 ± 0.2) hours of hospitalization.

EGDS was performed in 15 (42.86%) patients, no pathology was detected in 10 (28.57%), and signs of gastroparesis were diagnosed in 5 (14.29%). In 20 (57.14%) patients, VEGDS was not performed, as there was no need for differential diagnosis.

Ultrasound was performed in all 35 (100.0%) patients in the study group. Signs of acute pancreatitis were detected in all 35 (100.0%) patients.

Hydropertoneum was established in 19 (54.29%) patients, infiltration of parapancreatic tissue was detected in 3 (8.57%), and fluid formations in the abdominal cavity were detected in 13 (37.14%).

CT scan of the abdominal cavity with contrast was performed in 27 (77.14%) patients: 20 (57.14%) had acute necrotic pancreatitis, 7 (20.00%) had acute edematous-interstitial pancreatitis. The remaining 8 (22.86%) patients did not undergo CT, and they were diagnosed with severe AP according to the Glasgow-Imrie scale (*Table 1*).

CT was performed on patients on (5.8 ± 3.7) days of their hospital stay. The study was repeated only in 1 (2.86%) patient on the 20th day of hospitalization.

According to the Balthazar scale, CT index E was established in 24 (68.57%) patients, C in 3 (8.57%), and the number of points was as follows: 2–3 in 2 (5.71%) patients, 4–6 points in 18 (51.43%), and 7–10 in 7 (20.0%). Hydrothorax was detected in 21 (60.0%) patients: in 16 (45.71%) – bilateral, in 5 (14.29%) – unilateral.

After complete examination, clinical and instrumental confirmation of the diagnosis of severe GP, all patients were prescribed conservative therapy.

The main measures in the treatment of GP according to local clinical protocols are: correction of dehydration (infusion therapy with crystalloid and colloid solutions from 50–80 ml/kg to 120–160 ml/kg); pain relief (analgesics in combination with antispasmodics, epidural analgesia); antimicrobial therapy (in necrotic forms of acute pancreatitis); suppression of pancreatic and gastric secretion (sandoz, proton pump inhibitors); parenteral nutrition (partial or complete); stimulation of diuresis.

Table 1. **Glasgow – Imrie criteria for assessing the severity of GP**

Indicator	Value of indicator
Age, years	> 5
Leukocytosis, $\times 10^9$ /L	> 15
Hyperglycemia, mmol/L	> 10
Urea, mmol/L	> 16
pO ₂ , mmHg	< 60
Calcium, mmol/L	< 2.0
Albumin, g/L	< 32
LDH, IU/L	< 60
AST, IU/L	> 10
Note	The presence of 3 or more signs corresponds to a diagnosis of severe GP; pO ₂ – partial oxygen pressure; LDH – lactate dehydrogenase; AST – aspartate aminotransferase.

Given the severity of the general condition, 11 (31.43%) patients were admitted to the intensive care unit.

A significant effect of conservative treatment was achieved in 19 (54.29%) patients, and surgical intervention was performed in 16 (45.71%) patients.

Conservative treatment was based on infusion therapy, the average volume of which was (3148.48 ± 544.17) ml. The average volume of diuresis in patients was (1472.73 ± 334.98) ml. Oliguria was diagnosed in 5 (14.29%) patients, and there were no cases of anuria.

A multimodal approach to pain management was used. A visual analog scale (VAS) was used to determine the level of pain syndrome against the background of nonsteroidal anti-inflammatory drugs 2.0 ml intramuscularly three times a

day in combination with paracetamol solution 1000.0 mg intravenously twice a day.

In 20 (57.14%) patients whose pain on the VAS scale was assessed as moderate or severe, and who also developed paresis against the background of peristaltic stimulation, puncture and catheterization of the epidural space were performed.

Antibiotic therapy was administered to 31 (88.57%) patients: in the first 7 days – 23 (65.71%); after 7 days – 8 (22.86%); 17 (48.57%) patients underwent antibiotic replacement. Antibiotic therapy was not administered to 4 (11.43%) patients due to edematous–interstitial pancreatitis without elevated inflammatory markers (procalcitonin, C–reactive protein). Plasmapheresis was prescribed to 3 (8.57%) patients, sandostatin to 8 (22.86%).

Proton pump inhibitors at a dose of 80 mg per day intravenously were administered to all 35 (100.0%) patients.

Parenteral nutrition was prescribed to 11 (31.43%) patients with GP due to the severity of their general condition.

The main indications for surgery were the presence of fluid formations in the abdominal cavity requiring drainage and signs of acute peritonitis.

In the structure of surgical interventions, minimally invasive techniques were used to a lesser extent (Table 2). Only in 4 (25.0%) patients, puncture drainage of fluid formations was performed under ultrasound guidance, and in 3 (18.75%) – video laparoscopy with opening and drainage of fluid formations.

In 9 (56.25%) patients, laparotomy was used for surgical treatment. Necrosectomy, opening, and drainage of fluid formations were performed in 2 (12.50%) patients, necrosectomy, opening, and drainage of abdominal abscesses in 2 (12.50%) patients, necrosectomy, opening and drainage of the abscess of the gallbladder, cholecystostomy in 1 (6.25%), and opening and drainage of fluid formations in 4 (25.0%).

The overall postoperative mortality rate was 31.25%.

The high mortality rate in patients who underwent mini-

Table 2. **Nature and results of surgical interventions (n = 16)**

Nature of surgery	Number of patients					
	operated		Recovered		died	
	abs.	%	abs	%	abs	%
Puncture and drainage of fluid formations under ultrasound guidance	4	2	2	5	2	5
Video laparoscopy, opening and drainage of fluid formations	3	18	2	66	1	3
Laparotomy, opening and drainage of fluid formations	4	2	4	1	0	0
Laparotomy, necrosectomy, opening and drainage of fluid formations	2	1	1	5	1	50
Laparotomy, necrosectomy, opening and drainage of abdominal abscesses	2	1	2	1	0	0
Laparotomy, necrosectomy, opening and drainage of the abscess of the gallbladder, cholecystostomy	1	6	0	0	1	1

mally invasive surgery is associated with their extremely severe condition. In our opinion, laparotomy treatment methods would have been fatal for these patients.

Against the background of treatment carried out in accordance with the hospital's clinical protocol, the following complications were detected in 6 (37.50%) of the operated patients: postoperative wound suppuration – 3 (18.75%), abdominal abscesses – 2 (12.50%), bleeding – 1 (6.25%).

Only in 2 (12.50%) of the operated patients, a repeat laparotomy was performed due to abscesses in the abdominal cavity, which required repeated sanitation and drainage of the foci.

Against the background of the treatment, 29 (82.86%) patients were discharged with improvement for continued conservative therapy and outpatient follow-up. Six (17.14%) patients died. Among the deceased patients, 5 (83.33%) underwent surgical treatment. While the postoperative mortality rate in severe cases of alimentary etiology was 31.25%, the mortality rate in unoperated patients was 5.26% ($p = 0.0048$, $U = 112.5$).

The main cause of death in 5 (14.29%) patients was multiple organ failure, and in 1 (2.86%) patient, erosive bleeding into the abdominal cavity occurred, leading to critical blood loss and hemorrhagic shock.

Discussion

Based on the analysis of medical records of 35 patients with severe GP of alimentary etiology, it was established that 19 (54.29%) were young patients, which corresponds to the latest data in the literature, according to which the incidence of GP is increasing among young people [2].

Assessment of the duration of the disease from the onset of pain syndrome to hospitalization showed that in a significant number of patients (62.86%), it was up to 3 days, which is due to severe pain syndrome and the ineffectiveness of self-medication. The results were compared with data from the literature on early referral of patients for medical care [11].

All 35 (100.0%) patients, in accordance with the local clinical protocol in the emergency department, underwent ultrasound examination of the abdominal organs, and 15 (42.86%) underwent upper gastrointestinal endoscopy. Although the latter method of examination allows the detection of pathological changes in the pancreas, it is not included in either the local clinical protocol or modern clinical protocols [12].

In 27 (77.14%) patients, CT of the abdominal organs was performed on (5.8 ± 3.77) days of hospitalization. The timing of this examination method corresponds to the latest data in the literature [13]. Failure to perform CT in 8 (23.53%) patients can be explained by the technical capabilities of the clinic, as well as the severity of their condition and the onset of death during a short hospital stay.

Due to the severity of their general condition, 11 (31.42%) patients with GP were transferred to the intensive care unit, and 24 (68.57%) received treatment directly in surgical departments.

An analysis of the conservative therapy received by patients in the study group showed that the average volume of infusion therapy was (3148.48 ± 544.17) ml. According to the latest literature, moderate infusion support is recommended for patients with severe GP, which was taken into account in the treatment of the study group [14].

Pain relief was comprehensive and multimodal: all 35 (100.0%) patients received intramuscular injections of non-steroidal anti-inflammatory drugs in combination with intravenous infusion of non-narcotic analgesics. Against the background of the effective action of these analgesics, 20 (57.14%) patients received epidural analgesia for better pain relief and stimulation of intestinal peristalsis, although recent randomized controlled trials of this type of analgesia have not confirmed its high efficacy [15].

Antibacterial therapy was administered to 31 (88.57%) patients with necrotic form of GP and/or elevated blood procalcitonin levels. To suppress gastric secretion, all 35 (100.0%) patients received intravenous proton pump inhibitors, and 8 (22.86%) patients were administered sando-statin, although recent studies do not recommend routine use of these drugs [16].

Enteral nutrition was provided to 24 (68.57%) patients from the moment of hospitalization, and parenteral nutrition was provided to 11 (31.43%). These indicators are explained by the presence of clinical signs of intestinal paresis and the inability of patients to eat orally due to the severity of their condition and are acceptable according to current guidelines [17].

All 16 patients underwent emergency surgery, with laparotomy performed in the vast majority of cases (9, or 56.25%); only 7 (43.75%) patients received minimally invasive surgical treatment. These data indicate that surgeons more often use open methods of emergency surgery, taking into account the manifestations of acute peritonitis and the technical capabilities of the clinic.

The vast majority of surgical interventions (9, or 56.25%) were performed within the first 3 days of hospitalization. According to the literature, most surgical interventions for AP are performed later than 2 weeks after hospitalization [18].

According to the analysis of the postoperative period in patients with severe GP of alimentary etiology, postoperative complications occurred in 6 (37.50%) patients, in connection with which 2 (33.33%) underwent repeat surgery.

The overall mortality rate was 17.14% (6 patients died), the postoperative mortality rate was 31.25% (5 patients died), of which 4 (80.0%) died from endogenous intoxication against a background of multiple organ failure. In 1 (20.0%) patient, the cause of death was atheroembolic bleeding into the abdominal cavity. The high mortality rate in this category of patients indicates the complexity of treating severe GP of alimentary etiology and the need to search for and develop new methods to improve its outcomes.

Conclusions

1. The vast majority (54.29%) of patients with severe GP of alimentary etiology are young people. Given the high mor-

tality rate (17.14%), there is a need to find effective methods of treatment and prevention of this dangerous disease.

2. Determining the absolute indications for surgical intervention is a difficult task. The analysis revealed a significant postoperative mortality rate in this category of patients – 31.25%, while the mortality rate in the group of patients who did not undergo surgery was 5.26% ($p = 0.0048$, $U = 112.5$).

3. Patients with severe alimentary GP require a personalized approach using multisurgical treatment methods in combination with individually targeted conservative therapy. This will improve treatment outcomes, which will be reflected in a reduction in the frequency of postoperative complications and mortality rates.

Prospects for further research. Based on the results of the analysis and the identification of key problems, work will continue to improve the results of surgical treatment of patients with severe alimentary GP.

Funding. This article is part of the research work of the Department of General Surgery and Postgraduate Surgical Education at Zaporizhzhia State Medical–Pharmaceutical University on the topic: "Optimization of management tactics for patients with severe acute pancreatitis of alimentary etiology, taking into account personalized indications for multisurgical treatment methods" (state registration number 0122U201230).

Contribution of authors. Both authors made an equal contribution to this work.

Conflict of interest. None.

Consent to publication. Both authors have read the final version of the manuscript and agreed to its publication.

References

1. Kondratenko PH, Rusyn VI, editors. Surgery: textbook. Vol. 1. Vinnytsia : New Book; 2019. 704 p. Ukrainian. ISBN: 978–966–382–730–8.
2. Petrov MS, Yadav D. Global epidemiology and holistic prevention of pancreatitis. *Nat Rev Gastroenterol Hepatol*. 2019 Mar;16(3):175–84. doi: 10.1038/s41575-018-0087-5. PMID: 30482911; PMCID: PMC6597260.
3. Mouli VP, Sreenivas V, Garg PK. Efficacy of conservative treatment, without necrosectomy, for infected pancreatic necrosis: a systematic review and meta-analysis. *Gastroenterology*. 2013 Feb;144(2):333–40.e2. doi: 10.1053/j.gastro.2012.10.004. Epub 2012 Oct 12. PMID: 23063972.
4. Alsasser G, Klar E, Feitl J, Schafmayer C. Conservative therapy of severe acute pancreatitis is a safe option – results of a 15-year long-term follow-up cohort study. *Ann Med Surg (Lond)*. 2023 Apr 18;85(5):1556–61. doi: 10.1097/MS9.0000000000000697. PMID: 37228948; PMCID: PMC10205240.
5. Leppäniemi A, Tolonen M, Tarasconi A, Segovia-Lohse H, Gamberini E, et al. 2019 WSES guidelines for the management of severe acute pancreatitis. *World J Emerg Surg*. 2019 Jun 13;14:27. doi: 10.1186/s13017-019-0247-0. PMID: 31210778; PMCID: PMC6567462.
6. Banks PA, Bollen TL, Dervenis C, Gooszen HG, Johnson CD, Sarr MG, et al. Classification of acute pancreatitis–2012: revision of the Atlanta classification and definitions by international consensus. *Gut*. 2013 Jan;62(1):102–11. doi: 10.1136/gutjnl-2012-302779. Epub 2012 Oct 25. PMID: 23100216.
7. Kolosovych IV, Bezrodnyi BH, Hanol IV, Cherepenko IV. Stage approach in surgical treatment of acute pancreatitis. *Medicni perspektivi* 2020 July;25(2): 124–9. Ukrainian. doi: 10.26641/2307-0404.2020.2.206384.
8. Huang Y, Badurdeen DS. Acute Pancreatitis Review. *Turk J Gastroenterol*. 2023 Aug;34(8):795–801. doi: 10.5152/tjg.2023.23175. PMID: 37404118; PMCID: PMC10544623.
9. Mederos MA, Reber HA, Girgis MD. Acute Pancreatitis: A Review. *JAMA*. 2021 Jan 26;325(4):382–90. doi: 10.1001/jama.2020.20317. Erratum in: *JAMA*. 2021 Jun 15;325(23):2405. doi: 10.1001/jama.2021.5789. PMID: 33496779.
10. Wang C, Gou S. History of surgical intervention in severe acute pancreatitis treatment. *Zhonghua Wai Ke Za Zhi*. 2015 Sep 1;53(9):646–8. Chinese. PMID: 26654142.
11. Roberts SE, Morrison-Rees S, John A, Williams JG, Brown TH, Samuel DG. The incidence and aetiology of acute pancreatitis across Europe. *Pancreatol*. 2017 Mar–Apr;17(2):155–65. doi: 10.1016/j.pan.2017.01.005. Epub 2017 Jan 19. PMID: 28159463.
12. Cho JH, Kim TN, Chung HH, Kim KH. Comparison of scoring systems in predicting the severity of acute pancreatitis. *World J Gastroenterol*. 2015 Feb 28;21(8):2387–94. doi: 10.3748/wjg.v21.i8.2387. PMID: 25741146; PMCID: PMC4342915.
13. Tenner S, Vege SS, Sheth SG, Sauer B, Yang A, Conwell DL, et al. American College of Gastroenterology Guidelines: Management of Acute Pancreatitis. *Am J Gastroenterol*. 2024 Mar 1;119(3):419–37. doi: 10.14309/ajg.0000000000002645. Epub 2023 Nov 7. PMID: 38857482.
14. De-Madaria E, Buxbaum JL, Maisonneuve P, García García de Paredes A, Zapater P, Guilabert L, et al. Aggressive or Moderate Fluid Resuscitation in Acute Pancreatitis. *N Engl J Med*. 2022 Sep 15;387(11):989–1000. doi: 10.1056/NEJMoa2202884. PMID: 36103415.
15. Jabaudon M, Genevriar A, Jaber S, Windisch O, Bulyez S, Laterre PF, et al. Thoracic epidural analgesia in intensive care unit patients with acute pancreatitis: the EPIPAN multicenter randomized controlled trial. *Crit Care*. 2023 May 31;27(1):213. doi: 10.1186/s13054-023-04502-w. PMID: 37259157; PMCID: PMC10230742.
16. Horváth IL, Bunduc S, Hankó B, Kleiner D, Demcsák A, Szabó B, et al. No evidence for the benefit of PPIs in the treatment of acute pancreatitis: a systematic review and meta-analysis. *Sci Rep*. 2023 Feb 16;13(1):2791. doi: 10.1038/s41598-023-29939-5. PMID: 36797320; PMCID: PMC9935541.
17. Bakker OJ, van Brunschot S, van Santvoort HC, Besselink MG, Bollen TL, Boermeester MA, et al. Early versus on-demand nasoenteric tube feeding in acute pancreatitis. *N Engl J Med*. 2014 Nov 20;371(21):1983–93. doi: 10.1056/NEJMoa1404393. PMID: 25409371.
18. Hamesch K, Hollenbach M, Guilabert L, Lahmer T, Koch A. Practical management of severe acute pancreatitis. *Eur J Intern Med*. 2025 Mar;133:1–13. doi: 10.1016/j.ejim.2024.10.030. Epub 2024 Nov 29. PMID: 39613703.

Received 15.05.2025