

Exocrine secretion oppression as game changing tool in acute pancreatitis surgical treatment

The aim of the work: to assess changes in tactic of surgical treatment of acute destructive pancreatitis (ADP) due to octreotide prescription in high dose 1 mg/day (OHD).

Materials and Methods. OHD had been used as treatment of 6 patients with ADP. Within first two days of illness in such way were treated 4 patients (group1), in terms of two weeks after disease beginning OHD treatment had been applied to 2 patients (group2). All patients gave an informed consent to applied treatment.

There were 2 women and 4 men in the age from 17 to 75 years. Gallstone disease combined with excessive eating lied ground to ADP outbreak in 2 patients, alcohol excessive consumption combined with overeating in 4.

In our observations acute pancreatitis was diagnosed on integrated assessing results of clinical appearances, and results of laboratory and instrumental examining. OHD had been prescribed to every patient immediately after the diagnosis had been stated.

Results and Discussion. All patients from group 1 became free from clinical signs of ADP two hours after OHD administering. Prolongation of the OHD use during next two days resulted in normalizing of general clinical state and amylase level. In one patient after two days of OHD treatment clinical signs didn't normalized. There left some abdominal pain and substantial meteorism.

Both patients from group 2 obtain stabilization of general clinical status with the clear expression a sign of a local abscess. By means of computed and magnetic tomography almost two local niduses in every patient had been localized and subsequently subjected it to healing through a mini-invasion approach. Both patients recovered.

Conclusion. Thus, we can suggest that proposed method of OHD treatment cause stabilization of pancreatic parenchyma what may be the reason for observed immediate break of inflammation.

Key words: acute pancreatitis; octreotide; surgical treatment changes.

Problem definition. Acute destructive pancreatitis (ADP) treatment results remain unchangeable during last 30 years. Despite multitude attempts of results improving through introducing new disease classification with the aim of better timing and treatment choice [1] there is no considerable success. Up to now there is insufficient control over the progress of destructive changes in pancreas and surrounding tissues during first days of disease and also, upon possibility of enclosure of necrosis seat or pus location on 2–3 week of disease.

That are reasons for stable high lethality in consequence of ADP.

Thus, any progress in ADP treatment is highly desirable and is expected from developing new strategies [2].

There is a considerable experience in octreotide/somatostatin use in acute pancreatitis treatment [3, 4, 5].

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Diagnosis of ADP ascertains by assessing of clinical symptoms, laboratory and special instrumental data which in different combination present in various classifications. Most widely used is Atlanta II (revised) classification, but its prediction is far from be absolutely correct though other classifications also are widely in demand [6, 7]. While the presence of systemic inflammatory response syndrome on day 1 of hospital admission is highly sensitive in predicting severe disease [8].

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Results and Discussion. All patients from group 1 became free from clinical signs of ADP two hours

after OHD administering. Prolongation of the OHD use during next two days resulted in normalizing of general clinical state and amylase level. In one patient after two days of OHD treatment general clinical signs normalized while there left some abdominal pain discomfort and substantial meteorism. Here is this clinical case.

Case 1. Patient D., 45 years old, hospitalized 14 hours after acute abdominal pain onset. In addition to severe pain he complained of substantial abdominal distention, heavy breathing. Lavish meal with abundant alcohol consuming two hours earlier pain onset was its obvious reason.

Patient is troubled, in bed anxious. Pulse rate 110 in 1 min., blood pressure 90/60 mm Hg, breathing 28 in 1 min., armpit temperature 38.7°C. Abdominal wall evenly distended, skin on it irregularly tinted with cyanosis. Palpation of it is painful, while percussion there reveal tympani sound and there is no active peristalsis audible.

In blood: leukocytosis $12.8 \times 10^9/l$, amylase 1793 U/l, alanine transaminase 83.7 U/l, aspartate transaminase 54.5 U/l, glucose 23.2 mmol/l, bilirubin 13.5 mcmmol/l, urea 6.2 mmol/l.

Octreotide 0,1 mg and intensive therapy had been administered. In two hours, leukocytosis lowered to $8.4 \times 10^9/l$, amylase to 896 U/l, alanine transaminase to 58.0 U/l, aspartate transaminase to 34.0 U/l, glucose to 14.3 mmol/l, urea raised to 8.4 mmol/l. But patient's general status didn't change significantly.

So, ADP in progress had been diagnosed and OHD had been administered.

In 30 minutes after OHD administering patient's general status became much better with almost all of clinical signs of ADP disappear except some abdominal pain and substantial meteorism. On the next day amylase was 337 U/l, alanine transaminase to 48.8 U/l, aspartate transaminase to 40.9 U/l, glucose to 10.5 mmol/l, urea raised to 8.1 mmol/l while leukocytosis became $9.6 \times 10^9/l$.

On the third day of disease clinical status didn't change to that on second day while analyses became more indicative to local nidus: amylase lowered to 337 U/l, alanine transaminase to 18.6 U/l, aspartate transaminase to 22.0 U/l, glucose to 4.9 mmol/l, urea to 4.0 mmol/l with leukocytosis at $11.7 \times 10^9/l$.

USD revealed 400 ml of free liquor in the peritoneal cavity and paracentesis had been performed with opalescent exudate evacuation. At examining exudate contain protein 17.82 g/l, amylase 1500 U/l, C-reactive protein 89 mg/ml, leukocytes 30-40 in eyeshot.

Even at the time of exudate evacuation patient admitted comfort in abdomen, appearing of free and active peristalsis and full normalizing of general status.

In view of high leukocytosis for the next 10 days cephalosporin sulbactam had been administered with patient's full recovery and no signs of any complications 7 months later.

In analysis of this case it is important to mention the importance of pancreatic ascites evacuation. When its effect may be discussed while patient's general status is grave it became obvious at the time of significant improvement of clinical signs and laboratory data. This may be attributed to evacuation even not great volume of exudate but containing huge amount of amylase, c-reactive and other proteins. No wonder of immediate patient's recovery.

Also, it is worth to mention OHD effectiveness in a biliary caused ADP. In all patients biliary surgical sanitation had been performed after significant improvement of clinical signs and laboratory data. That may lay ground to reconsidering the necessity of immediate cholecystectomy in ADP with gallstone disease, supposed earlier [8, 9]. But other investigators hold on to other point of view. Removing the gall bladder after biliary pancreatitis is the key preventing recurrences. In mild cases, even during the index admission; in severe cases, it is recommended to wait until the inflammatory changes have resolved [10]. While timing of endoscopic papillotomy in choledocholithiasis should be estimated on analyzing more clinical cases.

Some specific emerge in vision of infection starting at ADP. Certain signs of that may be suggested at founding leukocytosis increase despite normal all other laboratory data and patient good health. It was found in all patients. In our experience cephalosporine sulbactam administering was sufficient to stopping any kind of inflammation. In this part our results contradicted those of O. Karakoyunlar and colleagues [3].

Because of already happened necrotic changes in pancreas and its surrounding retroperitoneal adipose tissue there is some difference in OHD impact on ADP course at the time 2-3 weeks after it beginning. The aim of OHD treatment at such occasion is to stop spreading inflammation as general process and limited it within a local change.

Results that had been achieved fully meet with this suggestion.

Both patients from group 2 obtain stabilization of general clinical status with the clear expression a sign of a local abscess. By means of computed and magnetic tomography almost two local niduses in every patient had been localized and subsequently subjected it to healing through a mini-invasion approach. Effectiveness of those diagnostic methods has been mentioned by radiologists [11, 12].

Out of every abscess from 80 to 250 ml of grey-colored liquefied *E. Coli* smearing pus had been evacuated. All residual halls had been drained.

On bacterioscopy Gram-positive and Gram-negative coccus had been found. That matched with cephalosporin sulbactam administered as antibacterial treatment.

There we found an interesting peculiarity of post-operational course of healing redundant hole after pus evacuation and nidus sanitation. On the contrary to tra-

ditional exudation of purulent content through the drains from the residual hole during 14-20 days or even longer, what is characteristic to destructive pancreatitis, after OHD treatment there were short period of exiguous exudation from all four drained abscesses (see table).

It may be suggested that such effect caused by significant diminishing of pancreatic secretion due to OHD though it must be confirmed by further data accumulation and patients examining.

Both patients recovered.

Table. Total volume of discharges through both drainages by days

	Total volume of discharges through both drainages by days, ml							
	1	2	3	4	5	6	7	8
Patient 1	150	110	110	90	50	50	50	20
Patient 2	120	90	90	70	20	20	20	–

Our surgical approach is in accord with recommendation of 2019 WSES guidelines for the management of severe acute pancreatitis [13].

Proposed OHD treatment are not only support those derived from investigation undertaken late in 1990-th by managing octreotide in dose of 0.5 microg/kg/hr by continued i.v. infusion during 48 hours [3].

Authors observe no significant difference in fasting blood glucose, albumin, calcium, hemoglobin, hematocrit, white blood cell count, LDH, AST, urea, systolic and diastolic pressure, heart rate and pyrexial changes while in study.

But our investigation differs from above mentioned by administering octreotide in bolus dose of 1000 mg repeatedly during three days. On the difference we observe not only amylase activity diminishing but also significant improvement patients' general status with no its deterioration in future. Thus, we can suggest that proposed method of OHD treatment cause stabilization of pancreatic parenchyma what may be the reason for observed immediate break of inflammation.

That allows different point of view on future development in on knowledge about acute pancreatitis. According to generally recognized position of necessity of finding available of clinically relevant endpoints and linked biomarkers will allow more accurate prediction of the natural course of disease over intermediate- or long-term-based characteristics of an individual patient [14].

But with the dramatic changes in the ADP course due to OHD treatment there may less needed search for critical endpoints and biomarkers.

Conclusion. Using of OHD is a very effective mean of ADP abortion and convert it from systemic disaster into a local change. In accord to time from ADP beginning to OHD administering pancreatic tissue reaction manifest as an acute oedema that disappeared neatly or as a local isolated nidus which may be drained and resolved by mini-invasive approach.

Indications to OHD treatment emerge from characteristic clinical signs of ADP during first day of disease or worsening general status of patient with prevailing general signs over local in more later time. Clinical signs should be supported by laboratory and special examination data.

OHD use do not cause to pancreatic ascites disappearing. But intraabdominal fluid contains amylase and proinflammatory proteins in much higher concentration than that in blood. This underscore the importance and necessity of paracentesis performing as soon as pancreatic ascites has been revealed.

For long-lasting ADP during second-third week of disease using OHD provides surgeon with the opportunity of dealing with a local nidus through a mini-invasive approach instead of struggle with unlimited and not intended to demarcation retroperitoneal phlegmon. Computed or magneto-resonate tomography gives the accurate view of nidus location, size and the best way of drainage.

Limitation to this paper is scarcity of cases. So next accumulation of cases observed and experience gained will furnish suggested assertions.

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КНП Київська міська клінічна лікарня № 1

ПРИГНІЧЕННЯ ЕКЗОКРИННОЇ СЕКРЕЦІЇ ЯК СПОСІБ РІШУЧОЇ ЗМІНИ ТАКТИКИ ХІРУРГІЧНОГО ЛІКУВАННЯ ГОСТРОГО ПАНКРЕАТИТУ

Мета роботи: оцінити зміни в тактиці лікування гострого деструктивного панкреатиту залежно від призначення високих доз октреотиду 1 мг/добу.

Матеріали і методи. Високі дози октреотиду використовували для лікування 6 пацієнтів із гострим деструктивним панкреатитом. Впродовж перших двох діб захворювання таким способом проліковано 4 хворих (1-ша група), через два тижні від початку захворювання лікування високими дозами октреотиду було застосовано у 2 хворих (2-га група). Усі пацієнти дали інформовану згоду на застосоване лікування.

Серед пацієнтів було 2 жінки та 4 чоловіки віком від 17 до 75 років. У 2-х пацієнтів причиною гострого деструктивного панкреатиту стали жовчнокам'яна хвороба та надмірне харчування, зловживання алкоголем у поєднанні з переїданням – у 4-х пацієнтів. У наших спостереженнях діагноз гострого панкреатиту встановлювали за результатами комплексної оцінки клінічних проявів та результатів лабораторно-інструментального обстеження. Високі дози октреотиду призначали кожному пацієнту одразу після встановлення діагнозу.

Результати досліджень та їх обговорення. У всіх пацієнтів 1-ї групи клінічні ознаки гострого деструктивного панкреатиту зникли через 2 години після введення високих доз октреотиду. Продовження застосування високих доз октреотиду впродовж наступних двох днів привело до нормалізації загального клінічного стану та рівня амілази. В одного хворого після дводенного лікування високими дозами октреотиду клінічні прояви не нормалізувалися – залишився біль у животі та сильний метеоризм.

В обох хворих 2-ї групи спостерігалася стабілізація загального клінічного стану з чітко вираженою ознакою локального абсцесу. За допомогою комп'ютерної та магнітної томографії у кожного пацієнта були виявлені два локальні вогнища та згодом пройшли лікування за допомогою міні-інвазивної хірургії.

Таким чином, можна припустити, що запропонований спосіб лікування високими дозами октреотиду приводить до стабілізації паренхіми підшлункової залози та зумовлює негайне припинення запального процесу.

Ключові слова: гострий панкреатит; октреотид; зміни хірургічного лікування.