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**PATHOPHYSIOLOGICAL ASPECTS OF INTRA-ABDOMINAL HYPERTENSION DURING ACUTE
SURGICAL PATHOLOGY**

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Intra-abdominal pressure (IAP) defines a steady-state pressure within the abdominal cavity, which has a reference range at rest of 0 to 5 mm Hg. The rise of IAP to 12 mm Hg or higher defines a state of intra-abdominal hypertension (IAH) and has long been associated with the potential development of organ-system dysfunction and multiorgan failure (MOF). The association between IAH and MOF defines abdominal compartment syndrome (ACS). Multiorgan failure is the leading cause of death in the surgical intensive therapy unit (ITU), with a mortality of up to 70%. Although MOF is often the consequence of a clear major insult such as trauma, burn, SAP, and shock, some 30% of bacteremic patients dying from MOF and clinical sepsis are found to have no septic focus on clinical basis or at autopsy. Circumstantial evidence exists to implicate a derangement in gut barrier function with translocation of bacteria and endotoxins in the development of MOF in critically ill patients. However, the potential impact of the rise in IAP with the subsequent development of IAH and ACS on the gut barrier remains unclear.

Experiments on 90 rats were performed. Edematous AP was induced by intraperitoneal injection of 250 mg/100 g of 20% L-arginine solution. Intraabdominal pressure has been continuously measured through the catheter after initiation of AP (1-st group) or elevated to the level of 15 mm Hg (2-nd group), 20 mm Hg (3-rd group) and 25 mm Hg (4-th group) during 3 hours. Changes of level of lactic acid, malonedialdehyde and diene conjugates were evaluated in pancreatic and small intestinal tissues. Concentration of microorganisms in internal organs were investigated by bacteriological methods.

Increase of intraabdominal pressure to the level of 15 mm Hg was followed with ischemia of mucosal layer of small bowel. In case of elevation of intraabdominal pressure to the level of 20 – 25 mm Hg pancreonecrosis appeared at 73.4% and abdominal compartment syndrome developed at 28.54% of experimental animals, translocation of *E. coli* and other Enterobacteria sp. occurred to mesenteric lymph nodes and pancreas.

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**MODERN ASPECTS OF SURGERY TREATMENT OPTIMIZATION OF ACUTE NECROTIZING
PANCREATITIS**

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Mortality with necrotic forms is still on a high level and ranges from 28% to 80%, despite active introduction of newest technologies in acute pancreatitis treatment with application of minimally invasive and low-traumatize technologies.

The goal of the research is to improve the results of patients' treatment with acute necrotizing pancreatitis by optimization of the existing methods and to investigate new methods of its surgical treatment.

The clinical research included 78 patients with acute necrotizing pancreatitis. The patients were divided into two groups. The control group included 28 patients, surgery was performed in accordance with generally accepted rules. The elaborated methods of surgical treatment of acute pancreatitis were used in the experimental group including 50 persons.

In addition to the existing today generally accepted approaches concerning advantages of using postponed surgery in the phase of purulent complications of acute pancreatitis, we have suggested use of more active surgical tactics for the patients with acute necrotizing pancreatitis. In case during the first three days since admission there was no effect after conservative treatment against the ground of negative dynamics of laboratory findings primary mini-invasive surgery was performed. At the same time, ultrasonic imaging (*echo-control*) of the omental bursa and retroperitoneal space with drainage applied to the most damaged parts of the pancreas and surrounding tissues was conducted. Their localization was determined on the basis of CT (computed tomography) and US (ultrasonic scanning) results. It should be noted that introduced micro-irrigators were used both for initial drainage and local introduction of anti-enzymatic drugs, and with the aim of an objective control over the damaged tissues which was detected on the base of exudate character changes.

In case of further progress of destructive pancreatitis video laparoscopy was performed, when certain conditions were created for a prolonged drainage of bursa omentalis, local medicamental influence on the most damaged parts of the pancreas and intra-portal introduction of medicines according to the worked-out methodology (patents for useful model № 66673, № 66934, № 62379, № 62364, № 38002, № 25832). Reasonability of such approaches was proved by the direction to prevent the progress and expansion of pancreas necrotic injury and its adjacent tissues as well as prophylaxis of purulent complications occurrence resulting from acute necrotizing pancreatitis.

Repeated video-laparoscopy was performed in case of formation of local purulent and necrotic complications. Depending on the localization of the lesion focus, laparoscopy was finished under the control of sonography or open bursa omentalis marsupialization, or low-traumatize lumbostomy by means of using local projection incisions.



On the terms of using omentopancreatoburso- or lumbostomy in a comprehensive treatment following the principle of low-traumatize procedures, repeated inspection of the foci, necrosis ectomy, sanitation and repeated local draining were conducted under control of a flexible fiber endoscope. It enabled to perform the indicated manipulations adequately, even in hard accessible "pockets" without any excessive traumatizing of the surrounding tissues.

We have worked out new draining-sorption devices, peritoneum- and vulneorsorption methods (patents for useful model № 66934, № 66654, № 30930, № 28280) with the aim to inhibit aggressive proteolytic injury of the pancreatic parenchyma and surrounding tissues as well as for prophylaxis and treatment of purulent-necrotic complications of acute pancreatitis. The use of the latter is characterized by sorbent applications with present antienzymatic and antibacterial properties that enabled to prevent a destructive action of local alternative factors and their spread effectively.

Laparotomy was performed in case diffuse pancreatogenetic purulent peritoneal inflammation (peritonitis) developed. Evacuation of peritoneal exudate followed by quadruple lavage of the peritoneum with warmed up to 38C⁰ Decasan and Miramistyn solutions and 5 minute exposition was made. Then the peritoneum was exposed to ultraviolet light with the help of the portable apparatus DRT-220 for 60 seconds. On completion of the main stage (necrosectomy, sequestrectomy, sanitation) surgery was finished by open bursa omentalis drainage or temporal closure of the operating wound (laparotomy) according to exactly determined methodology (patent for useful model № 25280, № 30930).

An essential part of effective treatment of acute necrotizing pancreatitis is providing conditions for an adequate prolonged local effect on the damaged pancreas tissues and retroperitoneal area during the post-operative period. That is why we offered the use of special draining-sorption constructions (patents for useful model № 25832, № 62379, № 66934). A prolonged running-fractional sanitation of the damaged tissues was performed in the post-operative period by means of these constructions.

As the result of such investigation we noticed that the use of the elaborated surgical methods in the treatment of acute necrotizing pancreatitis enabled: to reduce occurrence of microbe contamination of the operating wound edges to 61,7 % (P<0,05), the level of microbial pollution decreased to 73,7 % (P<0,05); to accelerate elimination of purulent-necrosis pancreas injury and its surrounding tissues to 27%; to reduce the number of postoperative complications to 18%; to make the duration of hospital treatment 25% less.

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CHRONIC URINARY INFECTION (CUI) AND BLADDER FUNCTION IN FEMALE INCONTINENCE (FI) PATIENTS

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The problem of FI is not solved yet. It has long be accepted that the main causes are hormonal influence and weakness of the perineum muscles but these suggestions can not explain all reasons of FI.

Two groups of incontinence women were examined (without neurological diseases) - with (40 pts) and without (56 pts) CUI. Only incontinence (without other voiding disorders) was presented in 10% pts with CUI and in 30,4% patients from the second group (p<0,01). On flowgrams max. and mean flow rates and acceleration were 1,57, 1,55 and 1,9 times less accordingly, and hesitancy was 1,98 times higher in the first group (table 1).

Table 1.

Pts	Max.fl.rate	Mean fl.rate	Hesist.	Acceler.
With CUI (40)	14,33*	7,03*	12,02*	1,91*
Without CUI (56)	22,4*	10,91*	6,07*	5,16*

On retrograde cystography during voiding only 5% of patients in the first group had the normal location of bladder neck (in comparison with 39,3% in the second group, table 2).

Table 2.

Position of bladder neck on cystography (%)

Pts	Motionless		Miction	
	Normal	Lower	Normal	Lower
With CUI	65	35	5*(p<0,05)	95
Without CUI	69,7	30,3	39,3*(p<0,05)	61,7

So these changes may be explained by deep affecting of the neuro-muscular apparatus of the sphincter and pelvic floor due to CUI and may be one of the main causes of ineffective FI treatment.