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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.