

# BILIARY DECOMPRESSION AS A PREPARATION TO PANCREATODUODENAL RESECTION IN PATIENTS WITH MECHANICAL JAUNDICE

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## Summary

The results of surgical treatment of 272 patients with the phenomena of mechanical jaundice caused by the pathology of the head of the pancreas were analyzed. The cancer of the head of the pancreas is verified in 174 (63.9%) of patients, Vater's ampule cancer in 20 (7.4%), cancer of the choledoch distal third in 24 (8.8%) and chronic pseudotumorous pancreatitis 54 (19.9%) of patients. Depending on the method of preparation for surgical treatment, the patients were divided into two groups: the main group consisted of 112 patients, who were prepared according to the developed algorithm, and in the control group (160 patients) – according to generally accepted standards.

**Key words:** prediction, biliary decompression, pancreatoduodenal resection, pancreas, mechanical jaundice, anastomosis

## Introduction

Despite the high level of modern surgical pancreatology development, the problem of surgical treatment of the head of the pancreas pathology, complicated by a syndrome of mechanical jaundice, continues to be the problem of numerous discussions and disputes [1, 2, 3, 4, 6, 9, 11].

The most radical surgical procedure in the treatment of mechanical jaundice, as a result of the pancreatic head lesions, is pancreatoduodenal resection (PDR), which is one of the most complex surgical interventions and is accompanied by a large number of postoperative complications [4, 6, 9, 11]. Execution of PDR at the height of mechanical jaundice increases the risk of postoperative complications to 40-52% and is accompanied by high postoperative lethality, reaching 15-19% [5, 9, 11].

Preliminary decompression of the bile ducts in the treatment of patients with mechanical jaundice can reduce postoperative lethality and the incidence of complications [2, 7, 8, 9]. However, the existing methods of rapid reduction of jaundice are not safe enough and can lead to worsening of the patient's state during the first 4-5 days after bile duct decompression, manifested by the increase in cholestatic and cytolytic syndrome, progression of hepatic encephalopathy, and multiple organ dysfunction [2, 7, 8].

Rapid decompression of the bile ducts, due to a significant biliary tract pressure changing, leads to reduction of the collateral blood flow, causing disorganization and dissociation of the liver acini, possibly due to activation of lipid peroxidation and violation of antioxidant defense of hepatocytes [2, 7, 8]. On the other hand, delaying the decompression of the bile ducts in pancreatic cancer can significantly worsen the prognosis of survival.

**The aim** of the study was to optimize the step-by-step approach to surgical treatment of patients with mechanical jaundice of various genesis by developing and implementing the rapid detoxification method in preparation for surgical

intervention.

## Material and methods

272 of patients with the pathology of the head of the pancreas, accompanied by the mechanical jaundice phenomena entered the study. In all of them PDR was performed. The average age of patients was 47.3 years, men were 141 (51.8%), women – 131 (48.2%).

The diagnostic algorithm during the stage of hospitalization included ultrasound, CT, MRI, endoscopy, according to indications – ERCPG, PET-CT. For excluding of the malignant lesion of the head of the pancreas (PH) the determination of the specific markers (CEA, CA 19-9, CA 50, CA-242) levels was performed.

Among the clinical manifestations, the main were the phenomena of obstructive jaundice, the syndrome of Courvoisier and small oncological signs. According to the results of the diagnostic algorithm, the cancer of the head of the pancreas is verified in 174 (63.9%) of patients, Vater's ampule cancer in 20 (7.4%), cancer of the choledoch distal third in 24 (8.8%) and chronic pseudotumorous pancreatitis 54 (19.9%) of patients.

## Results

The majority of patients were admitted to the surgical department in the neglected state, with long-standing jaundice (2-3 weeks and more) and high bilirubin level (more than 150  $\mu\text{mol/l}$ ). Surgical tactics were determined in accordance with the results of the survey. After determining the magnitude of the risk of the planned radical surgery according to the developed formula (the pathomorphological parameters of the patient's condition were taken into account), a decision was made as to the stage of surgical treatment. So, if the risk of pancreatoduodenal resection exceeded the permissible limit, the patient underwent biliary decompression as a preparatory stage. Puncture and laparoscopically assisted decompression of

the biliary tree were performed in 261 of patients (95.9%). The gallbladder puncture was performed much less often due to the small elasticity of the overstretched wall and the high risk of bile leakage. In those rare cases, when gallbladder puncture was performed, the intervention was performed through the liver parenchyma.

All patients were divided into two groups, decided by randomization: the main group (n = 112) – an optimized decompression algorithm was used, and control group (n = 162), where preparation to pancreatoduodenal resection was performed according to generally accepted standards.

In 112 of patients (the main group) preparation to the main operative intervention consisted in carrying out express detoxification according to the developed scheme. The method of express detoxication included traditional decompression of the biliary tree by catheters 6F or 9F under ultrasound guidance, followed by the admission of a specially selected pharmaceutical complex for the early reduction of the jaundice level and the performance of several plasmapheresis sessions (a patent of Ukraine). The efficiency of decompression was assessed by the volume rate of bile excretion by drainage; the optimum target level was 60-100 ml/day, the maximum acceptable – 300 ml/day. To avoid hepatic failure, the decrease in the rate of bile secretion was regulated, the volume velocity did not exceed 50% of the previous level, determined 24 hours before the current day.

In addition, markers of cytolytic (ALT, AST, GGT) and cholestatic (level of cholemia and alkaline phosphatase) syndromes were determined. Satisfactory decrement for these indicators is accepted to be no more than 20-25% per day.

For the visual effectiveness of the rapid detoxification offered method, the results were compared with those in 160 patients (control group) who underwent conventional preoperative

preparation. Time before the beginning of a jaundice level decrease in the patients of the main group was shorter than in the control one (by 41.2%), whereas the duration of the resolution of jaundice (or, more often, reaching its acceptable limits) in the control group was significantly higher (by 68.2%) ( $p < 0.01$ ).

Various variants of pancreatodigestive anastomosis (PDA) imposition were performed. Terminolateral anastomosis (according to Whipple) was performed in 38 (13.8%) of patients, termino-terminal (according to Shalimov-Kopchak's method) in 40 (14.6%), pancreatojejunoanastomosis with application of ductomucosal anastomosis in 128 (47.0%), pancreatogastroanastomosis with intussusception of the stump of the pancreas in the stump of the stomach – in 35 (12.8%), pancreatogastroanastomosis with immersion of the pancreas stump in the sleeve, cut from the large curvature of the stomach – in 32 (11.8%). The pancreatodigestive anastomosis failure detected in 32 (11.7%) of patients. Mortality rate was 5.1%. According to the Clavien-Dindo classification, the following postoperative complications were noted: II grade – 54 of patients, III grade – 8, IV – 2.

The most common complication after PDR was the pancreatoenteroanastomosis incompetency (of type A and B in ISGPF) – 32 (11.7%) of patients, which caused death in 14 cases. Mortality rate was 5.1%.

### Conclusion

Thus, the application of the proposed algorithm of biliary decompression allowed optimal preparation of patients for pancreatoduodenal resection within 4-5 days by achieving satisfactory parameters of their condition and avoiding progression of liver failure.

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