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ETIOPATHOGENESIS AND SURGICAL TREATMENT OF BILIARY PANCREATITIS. REVIEW

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Abstract

Introduction: Biliary pancreatitis is one of the most common pathologies, which is an important problem of modern surgery and has been on the rise over the past decades. One of the main etiological factors in the development of pancreatitis are diseases of the extrahepatic biliary tract. Pancreatitis of biliary genesis accounts for 26% to 60% of cases of acute inflammation of the pancreas. Chronicization of acute biliary pancreatitis reaches 43% of cases. The leading factors in the pathogenesis of "biliary" pancreatitis are: violation of outflow through the extrahepatic biliary tract and the ductal system of the pancreas, the occurrence of biliary-pancreatic reflux with the development of intraductal hypertension. Unfavorable outcomes of acute pancreatitis do not tend to decrease and are observed in 30% of the number of hospitalized patients, in 80% of which, according to pathological anatomical autopsies, death is due to a severe form of the disease. The main peaks of mortality in acute pancreatitis occur in two main phases - early, most often associated with the phenomena of pancreatogenic shock, and late, due to infectious complications of destructive forms. Purulent complications of acute pancreatitis are so diverse in form and localization that they require an almost individual approach to the treatment of each individual patient.

Objective: To review the literature on the surgical treatment of biliary pancreatitis.

Research methods: Literature search was carried out in search engines: Pubmed, Google Academy, elibrary.ru, as well as "manually". The search depth of Pubmed, Google Academy, elibrary.ru, as well as "manually", was not limited. The following filters were applied: full text, humans. *Criteria for inclusion of publications in the review*: publications that are in full-text access, in Russian and English, carrying statistically verified conclusions. *Exclusion criteria*: duplicate data, summaries of reports, newspaper publications, personal communications.

Results: Unfavorable outcomes of acute pancreatitis do not tend to decrease and are observed in 30% of the number of hospitalized patients, in 80% of which the fatal outcome according to pathological anatomical autopsies is due to a severe form of the disease. The main peaks of mortality in acute pancreatitis occur in two main phases - early, most often associated with the phenomena of pancreatogenic shock, and late, due to infectious complications of destructive forms. Purulent complications of acute pancreatitis are so diverse in form and localization that they require an almost individual approach to the treatment of each individual patient. Discussed and insufficiently unambiguous at the present time remains surgical tactics for various forms of acute pancreatitis in etiology.

Conclusions: Thus, high prevalence rates, frequent complications of biliary pancreatitis, the presence of numerous risk factors for its development necessitate the search for the most optimal methods for timely diagnosis and surgical treatment of this disease.

Key words: *Pancreatitis, acute biliary pancreatitis, choledocholithiasis, pancreas, extrahepatic biliary tract, virsungolithiasis.*

Резюме

ЭТИОПАТОГЕНЕЗ И ХИРУРГИЧЕСКОЕ ЛЕЧЕНИЕ БИЛИАРНОГО ПАНКРЕАТИТА. ОБЗОР ЛИТЕРАТУРЫ

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Введение: Билиарный панкреатит является одной из наиболее распространенных патологий, представляющей собой важную проблему современной хирургии и имеет тенденцию к росту в течение последних десятилетий. Одним из основных этиологических факторов в развитии панкреатита являются заболевания внепеченочных желчных путей. На долю панкреатита билиарного генеза приходится от 26% до 60% наблюдений острого воспаления поджелудочной железы. Хронизация острого билиарного панкреатита достигает 43% случаев. Ведущими факторами патогенеза «билиарного» панкреатита служат: нарушение оттока по внепеченочным желчным путям и протоковой системе поджелудочной железы, возникновение билиарно-панкреатического рефлюкса с развитием внутрипротоковой гипертензии. Неблагоприятные исходы ОП не имеют тенденции к снижению и наблюдаются у 30% от числа госпитализированных больных, в 80% из которых летальный исход по данным патологоанатомических вскрытий обусловлен тяжелой формой заболевания. Основные пики летальности при ОП приходятся на две основные фазы – раньнюю, чаще всего связанную с явлениями панкреатогенного шока, и позднюю, обусловленную инфекционными осложнниями деструктивных форм. Гнойные осложнения ОП настолько разнообразны по форме и локализации, что требуют практически индивидуального подхода к лечению каждого конкретного пациента.

Цель: Провести обзор литературы по хируггическому лечению билиарного панкреатита.

Методы исследования: Поиск литературы осуществлен в поисковых системах: Pubmed, Google Академия, elibrary.ru, а также «ручным способом». Глубина поиска Pubmed, Google Академия, elibrary.ru, а также «ручным способом», не была ограничена. Применялись следующие фильтры: full text, humans. *Критерии включения публикаций в обзор*: публикации, находящиеся в полнотекстовом доступе, на русском и английском языках, несущие статистически выверенные выводы. *Критерии исключения:* повторяющиеся данные, резюме докладов, газетные публикации, личные сообщения.

Результаты: Неблагоприятные исходы ОП не имеют тенденции к снижению и наблюдаются у 30% от числа госпитализированных больных, в 80% из которых летальный исход по данным патологоанатомических вскрытий обусловлен тяжелой формой заболевания. Основные пики летальности при ОП приходятся на две основные фазы – раннюю, чаще всего связанную с явлениями панкреатогенного шока, и позднюю, обусловленную инфекционными осложнниями деструктивных форм. Гнойные осложнения ОП настолько разнообразны по форме и локализации, что требуют практически индивидуального подхода к лечению каждого конкретного пациента. Обсуждаемой и недостаточно однозначной в настоящее время остается хирургическая тактика при различных по этиологии формах острого панкреатита.

Выводы: Таким образом, высокие показатели распространенности, частые осложнения билиарного панкреатита, наличие многочисленных факторов риска его развития обусловливают необходимость поиска наиболее оптимальных методов своевременной диагностики и хирургического лечения этого заболевания.

Ключевые слова: *Панкреатит, острый билиарный панкреатит, холедохолитиаз, поджелудочная железа, внепеченочные желчные пути, вирсунголитиаз.*

Түйіндеме

БИЛИАРЛЫ ПАНКРЕАТИТТІҢ ЭТИОПАТОГЕНЕЗІ ЖӘНЕ ХИРУРГИЯЛЫҚ ЕМІ. ӘДЕБИЕТТІК ШОЛУ

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Кіріспе: билиарлы панкреатит ең көп таралған патологиялардың бірі, қазіргі уақытта хирургияның маңызды мәселелерінің бірі болып табылады және соңғы онжылдықтарда саны артып келеді. Панкреатиттің дамуындағы негізгі этиологиялық факторларының бірден - бір себебі бауырдан тыс өт жолдарының аурулары болып табылады. Билиарлы генездегі панкреатит ұйқы безінің жедел қабынуын бақылауында 26% - 60% - ды құрайды. Жедел билиарлы панкреатиттің хронизациясы 43% жағдайға жетеді. «Билиарлы» панкреатиттің патогенезінің жетекші факторлары: бауырдан тыс өт жолдары мен ұйқы безінің өзегі өтімсіздігінің себебінен, өзек ішілік гипертензияның дамуынан билиарлы-панкреатиялық рефлюкс дамиды. ЖП қолайсыз нәтижелерінің төмендеу үрдісі жоқ және емдеуге жатқызылған науқастар санының 30% -да байқалады, олардың 80% -да патологиялық-анатомиялық ашып қарау деректері бойынша өліммен аяқталу аурудың ауыр түріне байланысты. ЖП кезіндегі өлімнің негізгі шыңдары екі негізгі кезеңге байланысты: ерте кезеңі - көбінесе панкреатогендік шок себебінен болса, кеш кезеңі деструктивті формалардың инфекциялық асқынуларына байланысты болып табылады. ЖП-тің іріңді асқынулары формасы мен локализациясы жағынан әр түрлі, сондықтан олар әр нақты науқасты емдеуге жеке көзқарасты қажет етеді.

Мақсаты: билиарлы панкреатитті хирургиялық емдеу туралы әдебиеттерге шолу жасау.

Зерттеу әдістері: әдебиеттерді Pubmed, Google академиясы, elibrary.ru, сондай-ақ «қолмен» іздеумен жүзеге асырылады. Іздеу тереңдігі Pubmed, Google академиясы, elibrary.ru, сондай-ақ «қолмен», шектеулер болған жоқ. Келесі сүзгілер қолданылды: fulltext, humans. Жарияланымдарды шолуға қосу критерийлеріне: толық мәтінді қол жетімді, орыс және ағылшын тілдеріндегі, статистикалық тексерілген қорытындылары бар жарияланымдар. Алып тастау критерийлеріне: қайталанатын мәліметтер, баяндамалардың қысқаша мазмұны, газет басылымдары, жеке хабарламалар.

Нәтижелері: ЖП қолайсыз нәтижелерінің төмендеу үрдісі жоқ және емдеуге жатқызылған науқастар санының 30% -да байқалады, олардың 80% -да патологиялық-анатомиялық ашып қарау деректері бойынша өліммен аяқталу аурудың ауыр түріне байланысты. ЖП кезіндегі өлімнің негізгі шыңдары екі негізгі кезеңге байланысты: ерте кезеңі - көбінесе панкреатогендік шок себебінен болса, кеш кезеңі деструктивті формалардың инфекциялық асқынуларына байланысты болып табылады. ЖП-тің іріңді асқынулары формасы мен локализациясы жағынан әр түрлі, сондықтан олар әр нақты науқасты емдеуге жеке көзқарасты қажет етеді. Қазіргі уақытта жедел панкреатиттің этиологиясы бойынша әртүрлі формалардағы хирургиялық тактика толық қанды шешімі табылған жоқ.

Қорытынды: осылайша, таралудың жоғары деңгейі, биллиарлы панкреатиттің жиі асқынуы, оның дамуының көптеген қауіп факторларының болуы осы ауруды уақтылы диагностикалау мен хирургиялық емдеудің ең оңтайлы әдістерін іздеуді қажет етеді.

Түйінді сөздер: *панкреатит, жедел билиарлы панкреатит, холедохолитиаз, ұйқы безі, бауырдан тыс өт жолдары, вирсунголитиаз.*

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Introduction

The history of the study of acute pancreatitis (AP) begins with the analysis of autopsy findings. From the middle of the 16th century to the end of the 19th century, descriptions of AP began to appear. The lethality rate was as high as 100%. The first description of sectional observation belongs to *S. Alberti* (1578), and in 1641, Tulbius from Holland described pancreas abscess at autopsy.

In 1673 Greisee described a patient with pancreonecrosis who died 18 hours after the onset of the disease, and the diagnosis was established by autopsy. Glaessen was the first to recognize and diagnose AP only in 1842. Ancelet in 1864 in Paris published the first manual on pancreatic diseases, and in 1870 the American pathologist Klebs developed the first classification of AP [54].

Professor *A.V. Martynov* in 1879 defended his dissertation on pancreatic diseases, where the author wrote: "When recognizing acute pancreatitis, error is the rule, whereas correct diagnosis is the exception". For quite a long time there was a judgment that acute pancreatitis could not be clinically diagnosed. *M.M. Wicker* (1938) - "...accurate recognition of OP is hardly possible"; *V.M. Voskresensky* (1942) in his turn wrote that - "...acute pancreatitis can be found only on the operating table"; G. Mondor (1949) represented - "...diagnosis of acute pancreatitis is considered an insoluble task" [21].

Professor *I.G. Rufanov* in 1925 cited a high mortality rate of 72% after surgery for acute pancreatitis, and in 1927 in Germany - V. Schmieden and W. Sebening called the pancreas "an organ hostile to surgical intervention".

In 1938 German Surgeons' Congress recommended to treat AP conservatively. In the report of *Academician A.N. Bakulev and Professor V.V. Vinogradov* (1951) at the 15th IV Plenum of All-Union Surgical Society it was stated "...conservative therapy is necessary for acute pancreas edema, and surgical treatment - for pancreatic necrosis". They were the first to suggest (in 1951) the term "pancreonecrosis".

In 1965 Professor *V.I. Rusakov* determined that "the future of pancreatic inflammations belongs to non-surgical methods" [41]. These principles are fundamental even nowadays.

In conservative treatment of AP a great role was played by: the discovery in 1972. (*C.D. Johnson*) cytostatic-5- fluorouracil and in 1973 - somatostatin (*P. Brazeau, W. Vale, R. Burgus*); as well as application of forced diuresis, laparoscopic sanation and drainage of abdominal cavity (1977).

Diseases of extrahepatic biliary tracts are one of the causes of pancreatitis. The incidence of pancreatitis of biliary origin ranges from 26% to 60% of all acute pancreatic inflammation [9,28]. Transition to the chronic stage of biliary pancreatitis is 43% [17]. The main reasons of "biliary" pancreatitis development are: disturbance of outflow through extrahepatic bile ducts and pancreatic duct system, appearance of biliary-pancreatic reflux with development of intraductal hypertension [3, 59]. The development of acute pancreatitis at cholelithiasis is connected with topographic and anatomical proximity of pancreatobiliary system structures as well as their functional relationship [18]. Such questions as determination of trigger mediators of pancreatobiliary hypertension at the initial stages of the disease formation and determination of diagnostic criteria of organic and functional changes in the pancreatoduodenal organs are not studied completely [3]. Biliary calculi are the main morphological substrate in the development of ductal hypertension, which provoke acute pancreatitis when they “transiently” pass through the extrahepatic bile ducts, or when they are infringed in the major duodenal papilla with compression of the orifice of the Virusung duct. With prolonged damage to the mucous membrane of the distal choledochus by a calculus, a cicatricial stricture is formed, which is the basis of the etiopathogenesis of chronic pancreatitis of biliary origin along with calculi, and in some cases is the main factor. Not all researchers attach importance to microcholedocholithiasis at the initial stages of biliary calculi formation in the basis of such strictures and pancreatobiliary hypertension preceding it [10]. Anatomical variants of pancreaticobiliary junction, variety of localizations, number and sizes of biliary stones, quite often combination of concrements and tumorous affection of pancreatobiliary zone, lack of absolute methods of microcholedocholithiasis detection make diagnosis of biliary pancreatitis difficult not only in latent forms of choledocholithiasis, but also in obvious clinical picture of the disease.

In patients with biliary pancreatitis the of the main problems is differential diagnosis in disease verification for choosing correct treatment tactics. The percentage of errors in correct diagnosis in such patients is quite high and can reach 30%, it is connected with insufficient informative value of clinical and laboratory diagnostic methods [44, 48].

Taking into account the steady increase of number of patients with cholelithiasis and pancreatitis of biliary origin, the research of diagnostics and surgical treatment of these diseases is still urgent and requires further development.

Objective: To reveal the features of etiopathogenesis and surgical treatment of biliary pancreatitis by reviewing the literature data.

Research methods: The following search engines were used for the literature search: Pubmed, Google Academy, elibrary.ru, as well as "manually". We chose the following search strategy in PubMed on the question epidemiology of biliary pancreatitis (MeSH Terms: epidemiology; gallstone pancreatitis; acute pancreatitis; surgical treatment of gallstone pancreatitis). The search depth in Pubmed was not limited. The following filters were used: full text, humans. A total of 2840 publications were found, 73 of which met the goal of our study. Search strategy in Google Academy: keywords - epidemiology of biliary pancreatitis. 1730 publications were found, according to the given query, 39 of them met the purpose of our study. In the process of searching literature on surgical treatment, we chose the following search strategy in PubMed (MeSH Terms: surgical treatment gallstone pancreatitis, pancreatitis). The search depth was not limited. 1905 publications were found, 49 of them met the purpose of our study according to the given query. Search strategy in elibrary.ru: keywords - acute biliary pancreatitis, pancreatitis, surgical treatment, choledocholithiasis. We found 2116 publications according to the specified query, among them there were 41 publications that met the purpose of our study. *Criteria for inclusion of publications in the review:* publications in full-text access, in Russian and English languages, carrying statistically verified conclusions. *Exclusion criteria:* abstracts of reports, newspaper publications, personal communications.

Results

Acute pancreatitis is an initially aseptic inflammation of the pancreas, with possible involvement of surrounding tissues, distant organs and systems [16]. The term "chronic pancreatitis" refers to a chronic recurrent inflammatory disease of the pancreas, leading to progressive atrophy of glandular tissue of the organ, replacement by connective tissue of cellular elements of parenchyma, lesion of ducts, pain syndrome and loss of exocrine and endocrine functions of the gland. There are a lot of factors in pancreatitis development, the main of them are alimentary-alcoholic factor and biliary tract diseases [24]. The term idiopathic pancreatitis is also often used, which means clinical and morphological similarity of pancreatitis, only without potential identification of the etiological factor at the time of the study; the proportion of such pancreatitis is about 10% of cases [51,70].

The most frequent cause of acute pancreatitis and exacerbation of chronic pancreatitis is biliary pathology. From the total number of all pancreatitis, acute pancreatic inflammation of biliary origin makes up from 26% to 60% of cases [34,74]. For the first time, in accordance with the decision of the All-Union Medical Scientific Conference "Actual Issues of Pancreatic Surgery" in Kiev (1988), pancreatitis of this origin was called biliary pancreatitis [1]. Nowadays biliary pancreatitis is interpreted as secondary inflammation of pancreas as a result of biliary system pathology in whole as a result of complicated course of cholelithiasis. Consequently, the definition "biliary pancreatitis", indicates the connection of pancreatic disease with pathological changes in biliary duct system [34].

In the etiopathogenesis of pancreatitis of biliary origin, the main factors are both a direct violation of the outflow of pancreatic secretion as a result of a block at the level of the ampulla of the Vater papilla, in particular, the formation of biliary-pancreatic reflux due to an increase in pressure in the extrahepatic biliary tract [33, 60]. The main role in the formation of biliary pancreatitis is played by the biliary component (herring of a calculus in the major duodenal papilla, compression of the mouth of the Wirsung duct by a stone or its “transient” passage, microcholedocholithiasis) against the background of pathological changes (stricture of the distal common bile duct, parapapillary diverticulum, papillitis) [25, 58].

An extraordinary feature of biliary pancreatitis is the possibility of combining several etiological factors, each of which can be both an independent cause and a manifestation of other pathological changes leading to biliary pancreatitis [4,46]. Pancreatitis of biliary genesis in many modern publications today is proposed to be distinguished as a special form of the disease, since it has a peculiarity of pathogenesis and clinical course, the specifics of diagnosis and the corresponding treatment positions [19].

The most common cause of biliary pancreatitis is choledocholithiasis [76]. Transobdominal ultrasonography is one of the most frequently used and available methods of clinical diagnosis, allowing to detect gallstones, common bile duct, mediated signs of biliary obstruction, such as dilation of intra- and extrahepatic bile ducts. The accuracy of this method in detecting gallbladder stones is 95% in typical cases, and in the case of biliary pancreatitis it decreases to 67% - 78% due to pneumatosis of intestinal loops [73]. In choledocholithiasis, the sensitivity of transabdominal ultrasonography is 50-80% and the specificity reaches 95% [23].

Since 2020, the classification of acute pancreatitis of the Russian Society of Surgeons (2014) has been used in the countries of the Commonwealth of Independent States, developed taking into account the Atlanta–92 classification and its modifications proposed in Cochin in 2011 (International Association of Pancreatology) and the International Acute Pancreatitis Classification Working Group in 2012 [12, 26, 37, 49].

According to the classification of acute pancreatitis adopted in the CIS [12].

According to the type of acute pancreatitis , there are:

1. Interstitial edematous acute pancreatitis.

2. Necrotizing acute pancreatitis.

According to the severity of the clinical picture of the disease:

1. Mild Acute pancreatitis, or interstitial, in which clinically significant necrobiotic changes in pancreatic tissue do not occur and do not cause the development of organ dysfunction syndrome. With this form of Acute pancreatitis, there is the minimum possible sum of points on any of the scales for assessing the severity of the general condition, such as SOFA, Marshall, APACHE II, III, the scale of criteria for the primary express assessment of the severity of the Acute pancreatitis of the St. Petersburg Research Institute of the Joint Venture named after I.I. Janelidze, etc.

2. Acute pancreatitis of moderate severity is caused morphologically by the formation of small foci of destruction of pancreatic tissue and causes the development of one of the local complications (pancreatic infiltrate, pseudocysts, abscess), transient organ dysfunction lasting less than 48 hours. Usually, with a moderate course of the disease, the average values of the sum of points on the evaluation scales are determined.

3. Acute severe pancreatitis causes a possible fatal outcome in the first phase, severe necrobiotic changes in the pancreas, widespread infiltration and parapancreatitis with the prospect of purulent complications, persistent organ dysfunction lasting more than 48 hours. In this case, the maximum sum of points of the evaluation scales is determined [52, 55].

In the future, the main idea of the study was based on the classification of acute pancreatitis by severity.

According to the phases of the course of acute pancreatitis.

With mild interstitial acute pancreatitis, there is no phase flow. Such forms of acute pancreatitis are at least 80% in frequency. With heavy and medium-heavy acute pancreatitis , the phase flow is always determined. Such forms of acute pancreatitis are characterized by two main peaks of mortality – early and late in the phase of purulent complications.

Phase I, early, may consist of 2 parts:

- IA - lasts no more than 1 week. During this period, foci of necrobiosis form in the pancreatic tissue and parapancreatic tissue. Manifestations of intoxication in patients are mild, or may be accompanied by systemic disorders, organ dysfunction. The duration of such changes does not exceed 72 hours. With a severe course of acute pancreatitis , the formation of destructive changes in the pancreatic tissue accelerates to 24-36 hours.

Intraperitoneally and parapancreatically and retroperitoneally, the enzymatic effusion of delimited and non-delimited exudative formations accumulates [22]. In the clinical course of severe acute pancreatitis , the phenomena of organ dysfunction prevail;

- IB - usually manifests itself after 7-14 days from the manifestation of the disease and is manifested by the body's response to the necrobiosis foci that have arisen. Clinically and instrumentally, patients have resorptive fever and the presence of parapancreatic infiltrate.

In the late II phase, beginning 2-3 weeks after the onset of the disease, the formation of sequesters in the pancreas and retroperitoneal tissue is observed, the development of purulent-necrotic changes in the surrounding tissues, the most severe of which are bleeding and sepsis [2,7,11,26,32,31].

There are two main directions of this phase:

- non-infectious or sterile, clinically manifested formation of fluid accumulations in the pancreatic parenchyma, parapancreatic and retroperitoneal tissue, postnecrotic pseudocysts [14];

- infection of areas of destruction of the pancreas and parapancreatic fiber, manifested by purulent complications of the destructive process (abscess of the abdominal cavity, phlegmon of parapancreatic fiber, purulent peritonitis, erosive bleeding, development of external or internal fistulas, sepsis, etc.).

According to the etiology of the development of acute pancreatitis:

1. Acute alcoholic or alimentary pancreatitis - up to 55%.

2. Acute biliary-dependent pancreatitis caused by bile discharge into the pancreatic duct and activation of its enzymes intraductally, usually occurring against the background of cholelithiasis, as well as diverticulitis, papillitis, parasitic lesions of the ducts, etc. - up to 35%.

3. Acute pancreatitis is traumatic, caused by traumatic damage to the pancreas, including surgical and endoscopic interventions - up to 2-4% [6, 42].

4. Extrapancreatic causes of acute pancreatitis: defeat of pancreas tissue by autoimmune antibodies, vascular catastrophes, adverse effects of medications, hormones, viral and bacterial infections, allergopathology, shock states, changes in hormonal status in physiological conditions, neoplastic processes - up to 6-8%.

In accordance with modern views, priority in the development of this disease remains for pancreas enzymes - trypsin, lipase, phospholipase-A2, lysosomal enzymes that trigger acute vascular catastrophes, thrombosis, hypoxia, and pancreatic cell alteration [66].

Complications of acute pancreatitis are conditionally divided into complications of the disease itself and extrapancreatic ones [72].

Complications of AP itself include:

- enzymatic peritonitis
- acute fluid accumulation of the abdominal cavity or retroperitoneal space (sterile / infected)
- acute necrotic accumulation (sterile/infected)
- pseudocyst (sterile/infected)
- purulent complications - purulent parapancreatitis, abscess, phlegmon
- pancreatic fistula

Extrapancreatic complications of AP: - thrombosis of the veins of the portal system

- varicose veins of the esophagus and stomach
- arterial pseudoaneurysm
- accumulation of fluid in the cavities
- arrosive bleeding
- digestive fistulas
- infectious-toxic shock
- sepsis

Depending on the severity of acute biliary pancreatitis, the choice of treatment tactics varies. According to the literature, patients with pancreatitis of biliary genesis, treated conservatively with moderate severity, in 95% of cases went to the hospital again within a quarter after discharge with the same diagnosis. Considering the fact that patients applied repeatedly, most authors recommend that instead of conservative introduction of patients, surgical treatment should be carried out, focusing on the sanitation of the biliary tract, after the improvement of the clinical picture, as well as laboratory data [69].

In patients with biliary pancreatitis, active surgical tactics using minimally invasive surgical interventions is justified and a priority [31]. With narrowing of the Vater papilla (papilla duodeni major) and to eliminate intraductal hypertension of the pancreas, the most common endoscopic treatment is stenting of the main pancreatic duct. In patients with acute biliary pancreatitis with a predictable severe course of the disease, the use of temporary stenting of the main pancreatic duct helps to reduce the incidence of severe forms of pancreatic necrosis, mortality, and the duration of inpatient treatment [40]. If an impacted stone served as a pathological element for the formation of biliary pankeratitis, then no matter what form and severity of pancreatitis, emergency surgical treatment is indicated to eliminate hypertension in the biliary tract [34]. The use of endoscopic papillosphincterotomy and removal of an impacted stone within 1-2 hours shows a fairly good therapeutic effect, which is manifested by a significant positive dynamic of clinical, laboratory and instrumental parameters, including in patients with destructive forms [19, 31]. So, to quickly eliminate biliary hypertension, percutaneous cholecystostomy under ultrasound, laparoscopic or laparotomic access, percutaneous transhepatic cholangiodrainage or endoscopic papillosphincterotomy with stone removal, nasobiliary drainage are used [34]. Due to the general severe condition of the patient and the presence of severe concomitant pathology, radical operations on the biliary tract (laparoscopic cholecystectomy) in most cases are postponed to a later date, necessary for the rehabilitation of pancreatic destruction, or are performed in a planned manner [57].

Increases the risk of pancreatitis of biliary origin, and is also a leading factor in the addition of cholangitis is the development of choledocholithiasis and / or narrowing of the papilla of Vater and, as a result, impaired patency of the outflow of bile [35]. An indication for decompression and sanitation of the biliary tract is also the formation of acute biliary pancreatitis, as well as purulent cholangitis. The method of choosing an operative aid for destructive forms of cholecystitis with manifestations of cholangitis against the background of acute pancreatitis is cholecystectomy with drainage of the choledochus [43]. After reduction or elimination of bacteriocholia in the postoperative period, it is found again in 20-25% of patients. Infection from outside,

that is, through the drainage of the common bile duct in an ascending way, is indicated by a change in the microbial composition of bile [35]. The combined use of laparoscopy and endoscopic interventions makes it possible to avoid external drainage of hepaticocholedochus [43].

Along with the above pathologies, such as destructive changes in the gallbladder, cholangitis and an increase in the symptoms of obstructive jaundice, obstruction of the calculus, indications for emergency surgical procedures are the progression of symptoms of enzymatic peritonitis, the progression of pancreatic necrosis. Indications for laparotomy are determined after laparoscopy with clarification of the state of the retroperitoneal tissue and the extent of the prevalence of necrosis. If during endoscopic manipulation it is not possible to eliminate the acute blockade of the terminal part of the choledochus, then it is necessary to perform an open surgical operation [34].

One of the first tasks of the surgical treatment of patients with chronic biliary pancreatitis against the background of choledocholithiasis is lithoextraction, the purpose of which is the elimination of hypertension in the biliary tract, given the above, the main point of application of surgical intervention is the biliary system [4]. Late complications of pancreatic necrosis, such as symptoms of intraductal hypertension, including: pain syndrome, cysts, strictures of the main pancreatic duct and common bile duct, fistulas, wirsungolithiasis are an indication for surgical treatment [29, 67, 68].

Relief of biliary pancreatic hypertension by timely surgical intervention allows to prevent or restrain atrophy of the pancreatic parenchyma and preserve the endocrine and endocrine function of the pancreas. [39]. In general, during the 5-th observation period, the results of treatment of various surgical aids for the correction of intra-current hypertension were higher than 70% [63]. Until now, many issues remain poorly studied and there are active discussions among most authors about which surgical treatment is the most effective and safe [30].

In the treatment of patients with chronic biliary pancreatitis on the background of cholelithiasis, it is recommended to actively use the possibilities of minimally invasive techniques [61]. As the first intervention, it is proposed to use laparoscopic cholecystectomy, choledochotomy with lithoextraction, and for concretions with a diameter of less than 1 cm, choledochotomy with lithoextraction should be replaced by endoscopic papillosphincterotomy or balloon dilation of the large duodenal papilla with the reduction of concretions into the duodenum [4].

R. Bowers in 1950 described the separation of the choledochus and pancreatic ducts by the formation of a biliodigestive anastomosis, which is used to treat chronic biliary pancreatitis. A distinctive feature of the operation is the complete transverse intersection of the CBD in the supraduodenal part, the imposition of a terminolateral choledochoeunoanastomosis on an isolated section of the jejunum. The choledoch during this operation is sewn tightly. Indications for surgery are tubular stenosis of the choledochus, primary strictures of the main duodenal papilla with impaired duodenal motility, recurrent strictures of the main duodenal papilla. Separation of the choledochus and pancreatic ducts in the long term is a more promising operation compared to other variants of biliodigestive anastomoses, since it excludes the formation of concretions in the "blind sac" and the associated relapse of the disease [53]. If it is impossible to isolate the intrapancreatic section of the choledochus due to technical features, as well as the absence of other complications of chronic pancreatitis of biliary genesis, extrapancreatic bypass surgery is indicated. The separation of the bile ducts and pancreatic ducts is justified even in the case of a serious condition of the patient, which does not allow performing interventions on the pancreas [5].

Operations aimed at correcting complicated forms of chronic biliary pancreatitis deserve special interest, in which there is focal or diffuse fibrosis, pseudocysts of the pancreas, fistulas. Draining operations do not always reduce pain in the absence of hypertension in the biliary tract, especially in pseudotumorous and calcifying forms of chronic pancreatitis [36, 56]. These morphological types are characterized by a pronounced pain syndrome, which is practically not stopped by conservative methods. In this regard, various methods of resection surgical aids are used [45]. In such patients, the use of the method of separation of the choledochus and the Virsung duct is impractical from the point of view of oncological alertness and is significantly inferior in the effectiveness of pain relief by resection methods of treatment [64]. It is also necessary to take into account the severity of exo- and endocrine insufficiency of the pancreas in order to preserve the maximum possible volume of gland tissue when choosing resection methods of surgical treatment [65,75]. Drainage operations are quite effective in the absence of a permanent pain syndrome, in addition, these operations allow to delay changes in the parenchyma and in some episodes to adjust the exocrine function of the gland [13, 15, 20, 45].

H. Beger proposed a technique that is shown in the presence of pronounced growth of the head of the pancreas, severe modifications of the proximal gland, which are combined with a narrowing of the diameter of the duodenum and distal choledochus or regional portal hypertension, this technique will save all extrapancreatic organs to be removed during classical pancreatoduodenal resection [50]. Mechanical jaundice, duodenal lumen stenosis, including the inability to exclude a tumor are indications for pancreatoduodenal resection surgery. Pancreatoduodenal resection is a very traumatic operation and is accompanied by a large percentage of complications and mortality [47]. The main disadvantage of pancreatoduodenal resection is a significant reduction in intra- and extrasecretory insufficiency due to the removal of a significant volume of pancreatic parenchyma [71]. Taking into account the above fact, using resection methods of surgical treatment, it is necessary to minimize the volume of the removed parenchyma of the gland [38]. In chronic biliary pancreatitis, intraoperative evidence of the benign nature of the process is of no small importance. Urgent histological examination of the pancreas and lymph nodes is mandatory [64].

Conclusions: Thus, high prevalence rates, frequent complications of biliary pancreatitis, the presence of numerous risk factors for its development necessitate the search for the most optimal methods of timely diagnosis and surgical treatment of this disease.

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