ОРИГІНАЛЬНІ ДОСЛІДЖЕННЯ

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DIAGNOSIS OF CHOLEDOCHOLITHIAZIS

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Abstract. Choledocholithiasis is an urgent problem of modern hepatobiliary surgery and accounts for 60% of all obstructive jaundice. Stones of the common bile duct cause cholestasis and mechanical jaundice syndrome and in case of untimely diagnostics to the development of such severe complications as acute cholangitis and biliary sepsis. The criteria for determining the sequence, stages and volume of diagnostic measures with choledocholithiasis have not been finalized by now.

76 patients with choledocholithiasis were studied. The diagnostic program was expanded due to the instrumental stage using ultrasound, duodenopapiloscopy, endoscopic retrograde cholangiopancreatography and MRT. The criterion for the patients selection was the syndrome of distal choledochal patency violation and the presence of stones in it according to echosonography and endoscopic cholangiopancreatography.

At sonography bilious hypertension was established in all 76 (100%) patients. Mechanical jaundice was present in 74 (97,4%) patients. Verified hepatic dysfunction with 84±9,6 mmol/l hyperbilirubinemia and an increase in AST and ALT levels to 1,2±0,9 mmol/l and 1,5±1,1 mmol/l, respectively.

At endoscopic retrograde cholangiopancreatography choledocholithiasis was found in 74 (97,4%) patients. Single stones were present in 24 (31,6%) and multiple - in 52 (68,4%) patients. In 72 (94,7%) cases, stones up to 1.5 cm in diameter were removed with a Dormia basket at one time or after mechanical lithotripsy. In 4 (5,3%) patients stones from 1,7 to 2,0 could not be removed endoscopically. Choledoch stenting was performed in 18 (23,7%) patients.

The treatment program was based on the use of a two-stage tactic. Biliary decompression at the first stage by endoscopic transpapillary interventions - endoscopic papillosphincterotomy, endoscopic balloon dilatation of the major duodenal papilla, mechanical lithoextraction and lithotripsy, stenting. If minimally invasive interventions were ineffective, traditional surgical correction of the underlying disease was performed at the second stage. Endoscopic retrograde cholangiopancreatography was performed in all 76 (100%) patients. In 54 (71.1%) cases, it was successful after typical cannulation of endoscopic papillosphincterotomy, and in 16 (21%) cases, it was performed after diagnostic or therapeutic endoscopic papillosphincterotomy. Balloon dilation of the sphincter of Oddi was performed in 12 (15.7%) patients with microlithiasis and single stones up to 1 cm in diameter.

One-stage transpapillary treatment was carried out in 56 (73,7%) patients, two and three stage treatment - in 16 (21,1%) cases, and «open» choledocholithotomy - in 4 (5,3%) cases.

Conclusion. The program of choledocholithiasis diagnostics with the gradual use of clinical, laboratory, radiological and endoscopic data allows carrying out correct detailing of cause, level, degree of common bile duct obstruction and the complicated course of the disease in 100% of cases.

Keywords: gallstone disease, choledocholithiasis, mechanical jaundice, ultrasound diagnostics, transpapillary minimally invasive interventions, biliary hypertension, duodenopapiloscopy, cholangiopancreatography.

Introduction. Choledocholithiasis (CHL), as a complication of cholelithiasis (CHL), remains an urgent problem of modern abdominal surgery [1-3, 12-16]. Despite the progress of hepatobiliary surgery, this pathology has a tendency to increase the number of cases, and its frequency reaches 60% in the structure of obstructive jaundice [2, 4-6]. About 10% of patients operated on CHL have a complicated course due to CHL, and a third of patients with acute pancreatitis have a biliary etiology [1, 2, 7-9].

It is known that the main factors of cholelithiasis are heredity, increased body weight and malnutrition, which ultimately leads to increased lithogenicity of bile and the formation of stones [1, 2-4, 7-8]. By their origin, common bile duct (CBD) stones are divided into primary, choledochogenic, formed in the CBD, and secondary, which migrated from the gallbladder.

The main pathogenetic factor of CBD is, first of all, the presence of CBD stones and impaired patency with the subsequent development of cholestasis and mechanical jaundice syndrome (MCS) [2, 4, 9, 10].

Non-standardized diagnostic and treatment programs in patients with CBD can lead to the development of such

formidable complications as acute cholangitis and biliary sepsis, which are recorded in approximately 60% and 20% of cases, respectively, lead to multiorgan dysfunction and are characterized by high (41-53%) mortality [1, 9, 11].

Today, approaches to the diagnosis of benign diseases that cause obstructive cholestasis need to be standardized. The absence of a generally accepted diagnostic program and, as a result, errors in establishing a final detailed diagnosis and verification of complications of CH is one of the main factors in the unsatisfactory results of treatment of this category of patients [12-16].

Also, the criteria for determining the sequence, stage and scope of diagnostic measures for the diagnosis of CH and its complications, as well as an agreed pathogenetically justified treatment strategy [1, 2, 5, 11, 12], require further development.

Purpose of the study. Optimization of the diagnostic program for patients with choledocholithiasis.

Material and methods of the study. The work is based on the analysis of the results of diagnosis and treatment of 76 patients aged 24 to 80 years (mean age 56±9.6 years) with the syndrome of impaired distal common bile duct patency due to CH. There were 52 women (75%), 24 men (25%). The majority of patients, 68 (89.5%), were hospitalized urgently with a clinic of hepatic colic.

The diagnostic program, in addition to standard clinical and laboratory diagnostics, included a sequential and step-by-step instrumental examination using ultrasound (US), duodenopapiloscopy (DPS), endoscopic retrograde cholangiopancreatography (ERCP) and MRI of the liver and biliary tract. The criterion for the initial selection of patients to the examination group was the presence of dilatation of the hepaticocholedochus according to data of more than 6 mm, and the presence of stones according to ultrasound and cholangiopancreatography.

The effectiveness of the treatment was assessed by the dynamics of clinical, laboratory data, as well as ultrasound data. The results of the study were statistically processed using the Microsoft Excel program package, with an assessment of the reliability of the indicators by the Student's t-test. The difference was considered significant at $p < 0.05$.

Research results and their discussion. According to transabdominal ultrasound, signs of biliary hypertension were detected in all 76 (100%) patients. The expansion of the biliary tract was 0.7 - 2.0 cm in diameter, on average - 1.3±0.9 cm. Mechanical jaundice was verified in 74 (97.4%) patients. The level of total bilirubin ranged from 20 μmol/l (with partial obstruction of the biliary tract) to 226 μmol/l (with CH with complete choledochal block). The level of AST and ALT was also increased, being 1.3±0.9 μmol/l and 1.6±1.1 μmol/l, respectively, and indicated the development of liver dysfunction due to secondary cholestatic hepatitis.

According to the DPS, a complete block of the biliary tract with the absence of bile in the lumen of the retroduodenal part of the duodenum was recorded in 74 (97.4%) patients, in the remaining 2 (2.6%) - bile from the major duodenal papilla (MDP) was supplied.

According to the data of contrast X-ray endoscopic studies, CL was established in 73 (96.1%) patients. Filling defects during ERCP were from 0.4 to 1.8 cm in diameter. In 3 (3.9%) patients, the cause of mechanical cholestasis was a stone in the ampulla of the MDP, which was removed after atypical endoscopic papillosphincterotomy (EPSP). Single stones in the distal part of the biliary tract were detected in 24 (31.6%), and multiple stones in 52 (68.4%) patients, respectively. Microliths (up to 3 mm) of the distal common bile duct and ampulla of the common bile duct were detected in 4 (5.3%) patients. In all cases, microcholedocholithiasis was accompanied by acute papillitis with obturation of the common bile duct. In 72 (94.7%) cases, stones with a diameter of up to 1.5 cm were removed with a Dormia basket in one step or after mechanical lithotripsy. In 4 (5.3%) patients, stones of about 1.8 cm were considered impossible to remove endoscopically and subsequently they underwent «open» choledocholithiasis.

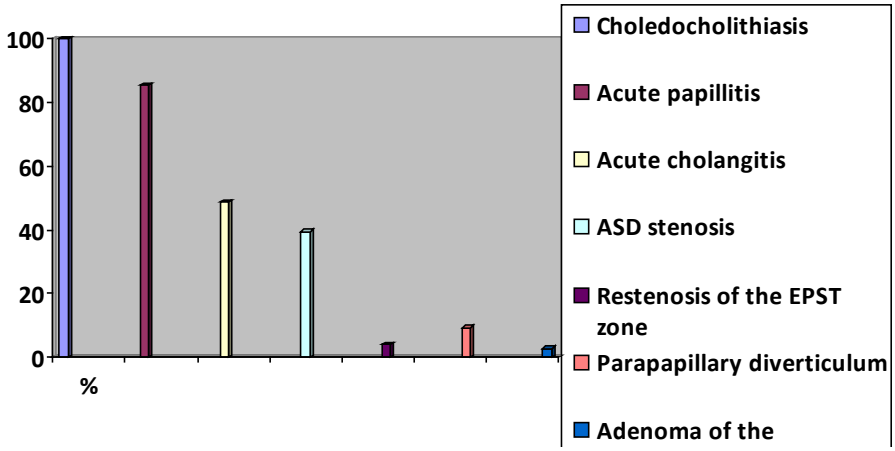

Figure 1. Distribution of patients with HL with associated pathology of the periampullary zone.

The treatment program was based on the use of a two-stage tactic. Biliary decompression at the first stage by endoscopic transpapillary interventions - EPST, endoscopic balloon dilatation of the VDS, mechanical lithoextraction and lithotripsy, stenting. If minimally invasive interventions were ineffective, traditional surgical correction of the underlying disease was performed at the second stage.

ERCP was performed in all 76 (100%) patients. In 54 (71.1%) cases it was successful after typical VDS cannulation, and in 16 (21%) it was performed after diagnostic or therapeutic EPST. Balloon dilatation of the sphincter of Oddi was performed in 12 (15.7%) patients with microlithiasis and single stones up to 1 cm in diameter.

One-stage treatment using minimally invasive interventions became the final treatment in 56 (73.7%) patients. Two-three-stage transpapillary stone removal was performed in 16 (21.1%) patients. In 4 (5.3%) cases, "open" choledocholithotomy was performed. There were no fatalities.

Thus, the results of the diagnosis of HL using the proposed program indicate its high efficiency in the diagnosis of benign obstructive diseases of the biliary tract. The conducted study correlates with the data of a number of domestic and foreign authors investigating this problem [1,2-7, 10-16]. Training of relevant specialists and equipping hospitals with modern equipment for minimally invasive transpapillary interventions with priority clinical application of the developed program will improve the results of the diagnosis and treatment of HL and other benign organic pathology of the terminal common bile duct.

Conclusion. The proposed program for the diagnosis of CH with the phased use of clinical, laboratory, radiological and endoscopic studies allows to correctly establish the cause, level and degree of impaired patency of the bile duct, as well as the complicated course of the disease in up to 100% of cases, and its results determine the further implementation of pathogenetically justified surgical treatment. Prospects for further research. The proposed clinical program for the study of benign disorders of the common bile duct patency will in the future allow to improve the results of the diagnosis of various forms of choledocholithiasis and improve the overall results of the treatment of this difficult category of patients.

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ДІАГНОСТИКА ХОЛЕДОХОЛІТІАЗУ

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Резюме. Холедохолітіаз є актуальною проблемою сучасної гепатобіліарної хірургії та становить 60% у структурі всіх обструктивних жовтяниць. Конкременти загальної жовчної протоки призводять до холестазу і синдрому механічної жовтяниці, а в разі несвоєчасної діагностики - до розвитку таких важких ускладнень, як гострий холангіт та біліарний сепсис. До теперішнього часу не визначені критерії черговості, етапності та обсягу діагностичних заходів при холедохолітіазі.

Мета дослідження. Оптимізація програми діагностики хворих на холедохолітіаз.

У дослідженні на 76 пацієнтах з холедохолітіазом стандартна діагностична програма була розширена через додавання інструментального етапу з використанням ультразвукового дослідження, дуоденопапілоскопії, ендоскопічної ретроградної холангіопанкреатографії та МРТ. Критерієм відбору хворих був синдром порушення прохідності холедоха та наявність конкрементів у ньому за даними ехосонографії та ендоскопічної ретроградної холангіопанкреатографії.

Сонографічно жовчна гіпертензія встановлена у всіх 76 (100%) хворих. Механічна жовтяниця була у 74 (97,4%) пацієнтів. Встановлена печінкова дисфункція з гіпербілірубінемією 84±9,6 мкмоль/л та підвищенням рівнів АСТ та АЛТ до 1,3±0,9 мкмоль/л і 1,6±1,1 мкмоль/л відповідно .

При ендоскопічній ретроградній холангіопанкреатографії холедохолітіаз підтверджено у 74 (97,4%) хворих. Поодинокі конкременти були у 24 (31,6%), а множинні - у 52 (68,4%) хворих. У 72 (94,7%) випадках конкременти до 1,5 см у діаметрі були видалені кошиком Дорміа одномоментно або після механічної літотрипсії. У 4 (5,3%) хворих конкременти від 1,7 до 2,0 см ендоскопічно видалити не вдалося. Стентування холедоха виконано 18 (23,7%) хворим.

Лікувальна програма базувалася на використанні двоетапної тактики. Біліарна декомпресія на першому етапі шляхом ендоскопічних транспапілярних втручань – ендоскопічної папілосфінктеротомії, ендоскопічна балонна дилатація великого дуоденального сосочка, механічна літоекстракція та літотрипсія, стентування. При неефективності мініінвазивних втручань на другому етапі виконували традиційну хірургічну корекцію основного захво-

рювання.

Ендоскопічну ретроградну холангіопанкреатографію виконано всім 76 (100%) хворим. У 54 (71,1%) випадках вона була успішною після типової канюляції ендоскопічної папілосфінктеротомії, а в 16 (21%) – була виконана після діагностичної або лікувальної ендоскопічної папілосфінктеротомії. Балонна дилатація сфінктера Одді виконана 12 (15,7%) хворим із мікролітіазом та поодинокими конкрементами до 1 см у діаметрі.

Одноетапне транспапілярне лікування виконане 56 (73,7%)) пацієнтам, дво-триетапне - 16 (21,1%), а 4 (5,3%) – «відкрита» холедохолітотомія.

Висновки. Програма діагностики холедохолітіазу з поетапним використанням клінічних, лабораторних, променевих та ендоскопічних даних дозволяє вірно деталізувати причину, рівень, ступінь порушення прохідності загальної жовчної протоки та ускладнений перебіг захворювання до 100% випадків.

Ключові слова: жовчнокам'яна хвороба, холедохолітіаз, механічна жовтяниця, ультразвукова діагностика, транспапілярні мініінвазивні втручання, жовчева гіпертензія, дуоденопапілоскопія, холангіопанкреатографія.

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