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Diseases of the Biliary System in Patients with Overweight

ABSTRACT

The results of the analysis of patients with increased body weight examination and state of their biliary system are presented. It is shown that a significant part of the observed patients are in risk group for the biliary tract diseases. Regardless of the degree of obesity these patients have disorders of fat metabolism: atherogenic dyslipidemia, impaired hormonal function. Significant amounts of the examined have pathology of the biliary system – non-alcoholic amyloid liver disease, the presence of bile heterogeneity (sludge) and the gallstones. It is revealed that the increased weight, together with serious cardiovascular system pathology and endocrine disorders affect the overall metabolism and, in particular, functional disorders of the biliary system.

Keywords: disease, biliary system, gastrointestinal pathology, overweight.

INTRODUCTION

The biliary tract diseases belong to the widespread gastro-intestinal pathology. Taking into consideration that diseases of the biliary system (cholecystitis, cholelithiasis) are often found in obese patients this problem is not only medical, but also an important socio-economic one [4]. The number of patients with the biliary system pathology has increased over the last decade in Russia for persons older than 50 years at 5%, and over 60 years – up to 20% [2]. In paper [3] it was noted a clear trend in the prevalence of cholelithiasis and the increasing number of operations on the occasion of cholecystolithiasis.

Doctors diagnose functional disorders of various organs and serious illness in obese patients: type 2diabetes, cardiovascular disease (CHD, GB), erosive-ulcerous defects of the digestive tract [5], polycystic ovary syndrome and syndrome of obstructive sleep apnea. For this group of patients it is more frequently diagnosed non-alcoholic fatty liver disease (NAFLD), atherogenic dyslipidemia [4], gastroesophageal reflux [6].

The aim of this work is the examination of patients with overweight and their biliary system status determination.

MATERIALS AND METHODS

We carried out the analysis of the biliary tract diseases for 51 patients who were examined and treated in the therapeutic Department of the hospital FCAN "MSU MIA of Russia in the Amur region" from 2008-2014. Among patients there were 41 employees and 10 retirees of the MIA, including 27 men and 24 women.

In the work to determine the degree of obesity examined we used the WHO classification on Kettle body mass index (1997, 2003), which, as you know, is determined by the formula:

$$BMI = m / h^2$$

where m – body weight in kilograms, h – the man's height in meters.

The calculation of Kettle BMI index allows determining the risk of accompanying disease according to table 1.

Table 1

Classification of obesity according to body mass index (BMI) according to the WHO classification, 1997, 2003

Classification	Body mass index (BMI) by Kettle, kg/м^2	The risk of associated diseases
The deficit of body weight	less then 18,5	Low
Normal body weight	18,5-24,9	Normal
Overweight (pre-obese)	25,0-29,9	Increased
Obesity of I degree	30,0-34,9	High
Obesity of II degree	35,0-39,9	Very high
Obesity of III degree	40,0 and more	Extremely high

The patients were divided by age into two groups: 1st group from 25 to 35 years old – 16 people, 2nd group from 36 to 60 years – 35 people. Kettle BMI index was calculated for each group and the number of patients in risk groups was determined (table 2). It turned out the body weight of all patients was increased, and 5 patients belong to the class of pre-obesity, 33 – to obesity of I degree, and 13 related to obesity of II degree.

Table 2

The proportion of patients' body mass index

Group	Age	The number of surveyed	Body mass index, kg/м^2		
			25,0-29,9	30,0-34,9	35,0-39,9
Group 1	25-35 years	16	3	10	3
Group 2	36-60 years	35	2	23	10

Analysis of anamnesis data, patient cards, and results of objective examination was fulfilled. For all the patients there was done an electrocardiogram (ECG), echocardiography, ultrasound of abdominal organs, renal ultrasound with Doppler of blood vessels, computed tomography (CT) of the abdomen, esophagogastroduodenoscopy (EGD), daily monitoring of arterial pressure (DMAP).

DISCUSSION

The prevalence of I degree obesity for surveyed people (see table 2) is as in the 1st group, for younger people (10 of 16, 62.5%) and for older people (23 of 35, and 65.7%). However, for the older people more often are II degree obesity (10 of 35. 28.6% against 3 of 16, 18.7%).

During the study, in 6 patients of the 2nd group there was diagnosed type 2 diabetes. Atherogenic dyslipidemia – high cholesterol levels, low density lipoprotein (LDL), triglycerides, lowered high density lipoprotein (HDL) is observed in the 1st group in 12 of 16 patients, and in the 2nd group – in all patients.

Using diagnostic ultrasound of the abdomen found for 43 people (84.3%) the nonalcoholic steatosis, for 4 people – the presence of biliary sludge (7.8%), for 9 people – the stones in the gallbladder (17.6%), confirmed by CT scan of the abdominal cavity. Esophagogastric reflux was observed in 10 (19.6%) patients of the 2nd group.

During the observation an increase in blood pressure was registered in 14 patients of the 2nd group. Daily monitoring of arterial pressure (DMAP) showed daily average increase in blood pressure (BP), Doppler ultrasound of renal vessels found a diffuse increase high-speed indicators and the increase of the resistance index. For 37 patients BP changed within normal limits. Doppler sonography of renal vessels for these patients did not identify any hemodynamic disturbances of blood flow in the renal arteries. The echocardiography revealed a mitral valve for one patient of the 1st group and extension chord valve apparatus for two patients of the same group.

CONCLUSION

Data of fulfilled observation showed that a significant portion of the observed patients are at risk for diseases of the biliary tract. First of all, it is persons who are overweight with fat metabolism disorders: atherogenic dyslipidemia, impaired hormonal function (5 women with polycystic ovary syndrome), functional disorders of the biliary tract: nonalcoholic fatty liver disease (NAFLD) for 43 of 51 (84.3%) patients, the presence of heterogeneity of bile (sludge) for 4 (7.8%) cases, the stones in the gallbladder for 9 (17.6%) patients.

For older patients (2nd group) in addition to pathological changes in the biliary tract there were selected 14 patients (40.0%) with arterial hypertension and 6 patients (17.1%) with type 2 diabetes. Obviously, overweight, a serious disease of the cardiovascular system, endocrine disorders affected the overall metabolism and, in particular, the functional disorders of the biliary system.

Thus, we found that patients with overweight are at risk group not only for the biliary system diseases, but also hypertension, diabetes and hormonal function diseases, and this is observed both for the young and the older patients. Of course, obesity and other risk factors are interconnected with each other and each of them makes some contribution to the development and progression of heart and blood-vessel diseases (HBVD) and diabetes mellitus. For all identified patients there was planned secondary prevention of cardiovascular complications and the formation of their commitment to the treatment with lipid-lowering drugs.

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