The implementation of international standards of evaluation of clinic of chronic pancreatitis in family medicine

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Key words: chronic pancreatitis, M-ANNHEIM system, diabetes mellitus, diagnostics, family medicine

Despite the progress in diagnostics and treatment of chronic pancreatitis (CP), in modern terms it remains a difficult problem of clinical therapy and surgery, as in many cases it is accompanied by severe and fatal complications. This is obviously due to the fact that CP is a polyetiological disease because of multiple reasons of the development [1]. External toxins, metabolic changes, immunomediated factors, congenital and acquired pancreatic duct stricture and others play the main role among them [2]. Upon CP, secretory and incretory parts of the pancreas are damaged, which in the later stages leads to concomitant diabetes mellitus (DM), which course in this pathology is not studied enough. It occurs in 10-90% of patients with CP [5, 7]. Such a large difference of the literature on the DM frequency in CP is associated with a different probability of endocrine disorders in various forms of pancreatitis [4, 8]. Today, criteria for assessing the severity of CP and CP with concomitant DM, depending on the severity of violations of pancreatic secretory and incretory functions, are still not fully clarified. In world practice the point M-ANNHEIM system is successfully used for studying the CP severity, which takes into account the multiplicity of risk factors for CP [3]. Multivariable M-ANNHEIM classification is simple, objective, accurate, does not require many invasive diagnostic methods considers etiology, disease stage and severity of clinical course, that offers the prospect of greater use in practice of the family doctor.

The aim is to assess CP severity according to M-ANNHEIM classification, depending on the presence of incretory pancreatic insufficiency.

Materials and methods

We examined 42 patients (21 men and 21 women) diagnosed with CP, 19 of them — with CP and 23 — with CP and DM. The overall average age — 49,9±2,0. The average age of patients with CP was 45,3±3,4 (8 men and 11 women), patients with CP and DM — 53,6±2,2 (13 men and 11 women). The diagnostics of CP and DM was verified in accordance with generally accepted clinical criteria [6].

Severity of CP was assessed by M-ANNHEIM system considering clinical stage and severity index. We analyzed the presence of excretory and incretory pancreatic insufficiency, structural changes of the pancreas according to USD, coprogram, the level of glycated hemoglobin in the blood, the number of complications. Coprogram assessment was carried out by the increasing number of muscle fibers, fiber that was digested, fatty acids, neutral fat, leukocytes, appearance of mucus and eggs of worms. Every pathological feature was evaluated as 1 point. Statistical significance of differences of averages was assessed by Student's test ($p < 0.05$).

Results and discussion

Patients were divided into two groups: group 1 — patients with CP, group 2 — patients with CP with concomitant DM. According to M-ANNHEIM classification, all patients belonged to the diagnostic category "defined CP". Among 42 patients studied, 16 (38.10%) had IIB, 3 patients (7.14%) — IIC, 19 patients (45.24%) — IIIA and 4 patients (9.52%) — IIIB CP clinical stage.

The study of pain syndrome in the examined patients showed that in 42.11% with CP pain disappeared when they used analgesics (2 points). 52.63% had periodic pain, which corresponded to 3 points. Periods without pain were noted, regardless of the presence or absence of drug treatment. In 5.26% of patients pain corresponded both for 2 and 3 points. In 30.43% of CP patients complicated with DM, pain abated after the use of analgesics (2 points), and 69.57% had periodic pain, which corresponded to 3 points. Pain control was assessed by M-ANNHEIM classification in 1 point in all the patients (100%), as all of them had used non-narcotic analgesics.

Surgical treatment was performed in group 1 for 10.53% of patients, and in group 2 — for 30.43% of patients, and two of them were re-operated.

In most CP patients with concomitant DM — 52.17% — proven exocrine insufficiency was observed, which corresponded to 2 points, in 47.83% — the presence of moderate exocrine insufficiency, which did not require replacement enzyme therapy (1 point). 84.21% of patients with CP have proven (2 points) and 15.79% — lighter (1 point) exocrine insufficiency. Patients without insufficiency of pancreatic functions were not present in the study.

Endocrine insufficiency was evaluated in the absence or presence of DM, and it was found in 100% of patients with CP and concomitant DM.

According to USD, 73.68% of patients with CP had changes in the structure of pancreas that met mild severity (2 points of M-ANNHEIM), 21.06% of patients — moderate (3 points). Significant USD changes in the structure of the pancreas were observed in 5.26% of patients, which corresponded to severe stage (4 points). In CP patients with concomitant DM USD changes were more evident. In particular, in 43.48% of patients with changes in the structure of the software answered mild severity (2 points) in 56.52% of cases — moderate (3 points). In patients with CP and CP on the background of DM complications were found respectively in 3 and 4 patients.

14 (73.68%) patients with mild (B) and 5 (26.32%) — with average (C) CP severity were revealed according to M-ANNHEIM classification. However, among patients with CP and DM, 2 (8.70%) patients with moderate (B), 16 (69.56%) — with average (C), 3 (13.04%) — with evident (D) and 2 (8.70%) — with severe (E) CP were revealed.

Analyzing data of coprogram, USD and the level of glycosylated hemoglobin, we found the dynamics of changes listed in Table 1. In CP patients with concomitant DM coprogram changes were significantly more important than in patients without DM — 5.45+0.18 vs. 4.73±0,14 points. A similar trend was observed regarding changes in the USD criteria in points — 5,21±0,23 to 4,05±0,30 points. The level of glycosylated hemoglobin in patients with DM (7,13±0,36 mmol/L) was significantly higher than that of patients with CP without incretory pancreatic insufficiency (5,15±0,19 mmol/L).

During the correlation and regression analysis we found direct correlations between severity of CP by M-ANNHEIM and coprogram changes (r=0.67; p<0.001), ultrasound criteria (r=0.54; p<0.01), glycosylated hemoglobin level (r=0.66; p<0.001).

Table 1

Dynamics of coprogram changes, ultrasound data and blood glucose in patients with CP and CP complicated by DM

Laboratory & instrumental index	CP n=19	CP+DM n=23
USD, points	4,05±0,30	5,21+0,23*
Glycosylated hemoglobin, %	5,15±0,19	7,13±0,36*

Note: * — significance of the indexes difference in CP+DM group concerning those in CP group (p<0.05).

The results suggest that the use of point system of evaluation of the severity of the CP patient by M-ANNHEIM classification allows to formalize evaluation of a patient's condition from descriptive criteria to the quantitative scale, which is important in terms of health care reform in Ukraine, including its primary link. This will allow health professionals and insurance companies, sickness funds and other funds that finance the treatment of the patient, to have an objective approach to the selection of the diagnostic algorithm, treatment techniques, evaluation of its effectiveness in dynamics and its financial support. Quantitative criteria of M-ANNHEIM classification are easy to use, can easily be included into a digital health passport, which will provide objective dynamic observation of the patient, timely application of not only therapeutic but also preventive programs of clinical examination and routine supervision, which is proven in terms of their use in clinical practice. The close correlation between the CP severity by M-ANNHEIM classification and objective criteria of chronic pancreatic lesions demonstrates its high information value that is the novelty of our study. Thus, introduction of determining the CP severity by M-ANNHEIM classification in the practice of family doctor is an important tool in the objectification of the patient's condition during outpatient or inpatient treatment, which is important in terms of health insurance.

Conclusions

1. Endocrine pancreatic insufficiency upon DM complicated a clinical course of chronic pancreatitis according to the M-ANNHEIM scoring system, that correlated with the changes of coprogram (r=0.67; p<0.001), USD criteria (r=0.54; p<0.01), level of glycated hemoglobin (r=0.66; p<0.001).

2. CP degree was more expressed in patients with CP and concomitant DM than in the case of CP without endocrine insufficiency. Average severity (S) prevailed in 69.56% of patients in the group 2 vs. 26.32% in the group 1; we revealed the cases of evident and severe degrees.

3. We recommend to use M-ANNHEIM scoring system in gastroenterological practice, at therapeutic institutions and in practice of family physicians.

In the perspective research we are planning to conduct further studies evaluating the proposed programs of therapy for CP patients with concomitant DM by M-ANNHEIM point system.

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The estimation of chronic pancreatitis degree was conducted in 42 patients according to the M-ANNHEIM classification, depending on the presence of endocrine pancreatic insufficiency. Endocrine pancreatic insufficiency upon diabetes mellitus complicated a clinical course of chronic pancreatitis according to the M-ANNHEIM scoring system, that correlated with the changes of coprogram ($r=0.67$; $p<0.001$), USD criteria ($r=0.54$; $p<0.01$), level of glycated hemoglobin ($r=0.66$; $p<0.001$). CP degree was more expressed in patients with chronic pancreatitis and concomitant diabetes mellitus than in the case of chronic pancreatitis without endocrine insufficiency. Average severity (S) prevailed in 69.56% of patients in the group 2 vs. 26.32% in the group 1. We recommend to use the M-ANNHEIM scoring system in gastroenterological practice, at therapeutic institutions and in practice of family physicians.