ASSESSMENT OF THE DYNAMICS OF HEPATIC ENCEPHALOPATHY IN PATIENTS WITH CIRRHOSIS BEFORE AND AFTER IN-HOSPITAL TREATMENT

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ABSTRACT

Hepatic encephalopathy (HE) is a frequent complication of liver dysfunction, including acute liver failure and cirrhosis. HE presents with a sHEctrum of neuropsychiatric symptoms ranging from mild cognitive impairment to coma. The diagnosis of HE is based on the characteristic anamnestic, clinical and paraclinical findings and requires the exclusion of other causes of encephalopathy . Psychometric tests are widely used in clinical practice for the early diagnosis of HE: number-letter, number- line, handwriting, arithmetic etc. The sensitivity of psychometric tests in detecting HE is 70-80%. Although less severe, patients with minimal hepatic encephalopathy are at significant risk for impaired quality of life, including increased hospitalisation and progression to manifest HE. The main aim of our study is to compare and evaluate the extent and dynamics of HE in patients with cirrhosis before and after inpatient treatment.

KEYWORDS

Liver cirrhosis, hepatic encephalopathy, blood ammonia, hospital treatment.

INTRODUCTION

Hepatic encephalopathy (HE) is a frequent complication of liver dysfunction, including acute liver failure and cirrhosis. HE presents a totality of neuropsychiatric symptoms ranging from mild cognitive impairment to coma. It is a significant morbidity factor in patients with liver disease. HE is frequently seen in cirrhosis. Hepatic encephalopathy is classified as types A, B and C, respectively. HE can also be classified according to whether its presence is overt or covert. The pathogenesis is related to the production of ammonia and glutamine, and treatment is based on mechanisms that reduce the formation and/or removal of these compounds. All forms of HE and their manifestations are reversible.

Hepatic encephalopathy (HE) is a hallmark of liver failure and affects up to 40% of patients with cirrhosis. It is defined as a multifactorial neuropsychiatric disorder manifesting a wide collectively of cognitive impairment and neuromuscular dysfunction. HE is a significant cause of repeated hospital admissions in cirrhotic patients and seriously affects quality of life in both patients and caregivers. It is a marker of poor prognosis in patients with cirrhosis, with a reported survival rate of only 36% 1 year after first presentation.

There is no specific diagnostic test for HE, and the diagnosis is based on clinical suspicion, excluding other causes and the use of clinical tests that can confirm its diagnosis. Many tests have been used in trials and experiments, but are not yet universally accepted [3,7,17].

The diagnosis of HE is based on the characteristic anamnestic, clinical and paraclinical findings and requires the exclusion of other causes of encephalopathy [8,11]. Psychometric tests are widely used in clinical practice for the early diagnosis of HE: number-letter, line, handwriting, arithmetic, etc. The sensitivity of psychometric tests in detecting HE is 70-80%.

Patients usually present to primary and secondary care services with complications such as HE, with or without a prior diagnosis of chronic liver disease. There is also a milder form of the disease, latent or minimal hepatic encephalopathy (MHE) or latent encephalopathy with little change in cognitive function. Despite the less severe form, patients with MHE are at significant risk of a deterioration in quality of life, including increased hospitalisation and progression to manifest HE.

AIM OF THE STUDY

To compare and evaluate the degree and dynamics of HE in patients with cirrhosis before and after in-patient treatment.

MATERIAL AND METHODS OF INVESTIGATION

The research was carried out in the 1st Clinic of the Samarkand State Medical Institute, the 2nd Department of Internal Medicine. A total of 35 patients with cirrhosis of various genesis like hepatitis B, C, D, alcohol, autoimmune and cryptogenic took part in the research. The patients were examined and treated in a therapeutic department. Exclusion criteria: mental illness, cerebrovascular disease.

Table 1.

Etiologyofcirrhosis	Numberofpatients (n)	(%)
Hepatitis C	10	28,6%
Hepatitis B	9	25,7%
Hepatitis B, D	3	8.6%
Alcoholic	2	5,7%
Fattyhepatosis	7	20%
Autoimmune	1	2,9%
Cryptogen	3	8,5%

The severity of cirrhosis in all patients was assessed according to the Child-Tercott-Pugh classification. The grade of cirrhosis was based on the sum of all scores. All patients underwent a complex of investigations, such as: general blood count, urine, blood biochemistry, liver ultrasound, liver elastography, liver fibroscopy, esophagogastroduodenofibroscopy (EGDFS), ammonia in blood.

To assess the severity of HE, the following were used: 1) psychometric test (a number binding test (Reitan test) was used as a psychometric test; 2) West-Haven criteria for hepatic encephalopathy as modified by Conn (1994).

In assessing the severity of hepatic encephalopathy, a questionnaire and a "Number Binding Test" to test the ability to connect numbers from 1 to 25 in a correct sequence over a period of time was used.

RESULTS OF THE STUDY AND DISCUSSION

Of the patients examined 20 (57.2%) were male and 15 (42.8%) were female. Minimum age was 32 years. Maximum age was 64 (mean age was 49 ± 8.2). Based on the data of laboratory tests and clinical observations the group of patients (35 patients) was divided into 3 subgroups according to the severity of cirrhosis according to Child-Pugh classification. Group

A included 18 (51,5%) patients, Group B - 13 (37,1%), Group C - 4 (11,4%) patients.

The results were: 1) before ongoing treatment: 0 (latent HE) was detected in 8 (22.9%) people the average time to pass the test was 58.4 s, 1 degree in 19 (54.3%) people the average time to pass the test was 82.8 s, 2 degree in 7 (20%) people the average time to pass the test was 111.9 s, 3 degree in 1 (2.8%) person due to severity of the patient could not pass the test; 2) after ongoing treatment (diet - table 5, drug therapy - lactulose, preparations of ursodeoxycholic acid, very cautiously branched amino acids, L-ornithine-Laspartate, vitamins, antibacterial agents - Rifaximin). After the test, out of 35 patients: grade 0 (latent HE) - 11 (31.4%) people, mean time to pass the test was 58.1 seconds, grade 1 - 18 (51.4%) people, mean time to pass the test was 81.4 seconds, grade 2 - 5 (14.3%) HEople, mean time to pass the test was 112.1 seconds, grade 3 - 1 (2.9%) people, but could not pass the test because of disorientation.

Results of investigation: after in-patient treatment average time of test passing 0 degree (latent) 8 (22,9 %) people, average time of test passing was 58,4 sec, 1 degree - 19 (54,3 %) people, average time of test passing was 82,8 sec, 2 degree - 7 (20 %) people, average time of test passing was 111,9 sec, 3 degree - 1 (2,8 %) people, average time of test passing was 190,2 sec. The majority of patients with cirrhosis showed a reduction in the severity of HE symptoms (psychomotor retardation and difficulties in performing everyday activities, altered level of consciousness and disorientation, as well as sleep-wake cycle disorders, personality changes, motor system disorders, including hypertension, hyperreflexia, dystonia, dyskinesia, plantar muscles lifting and asterixis) during inpatient treatment.

CONCLUSIONS

HE is a totality of neurological and psychiatric disorders from subclinical manifestations to coma. All patients with hepatic cirrhosis who have been in-patients of Department 1 of Samarkand State Medical Institute had hepatic encephalopathy of varying severity, from mild to severe. Hepatic comaor the 4th degree of hepatic encephalopathy was not diagnosed in any patient, because the 4th degree of hepatic encephalopathy was not hospitalised in a therapeutic department, as this condition is considered intensive care. During inpatient treatment, most patients' psychometric test time decreased and their neurological and mental status improved, indicating that the severity of HE has regressed against the background of treatment and that the therapies used were effective.

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