Research Article

Neuropsychiatric Profiles in HCV-related Chronic Liver Diseases

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Abstract

Background: Hepatitis C virus (HCV) infection is one of the main causes of chronic liver disease worldwide. HCV infection is considered a systemic disease because of involvement of other organs and tissues concomitantly with liver disease. Among the extrahepatic manifestations, neuropsychiatric disorders have been reported in up to ٥٠٪ of chronic HCV infected patients. **The aim of this study is to** evaluate the common neuropsychiatric disorders in patients with chronic liver diseases (CLD), and their effects on patients' quality of life. **Materials and methods:** The study included ٨٠ participants (٦٠ patients with chronic liver diseases and ٢٠ healthy controls matched for age, sex, and educational level)**,** patients with liver cirrhosis were classified according to Child Pough classification into: Child A, B, and C, **All individuals were subjected to**:Thorough medical history, physical examination, liver function tests, hepatitis markers, abdominal ultrasonography, and neuropsychiatric ssessment using: (Unified Parkinson's Disease Rating Scale (UPDRS), Chronic liver disease Questionnaire. **Results:** The data showed that patients with CLD had significant, Cirrhotic patients had extrapyramidal signs, bradykinesia, rigidity and resting tremors increasing in frequency with increased severity of liver disease by Child Pugh classification (P~ ٠.٠٠١). Rigidity and difficulty in dressing using (UPDRS) were the most frequent signs. The data showed that patients with CLD had significant impairments of quality of life. Chronic liver disease patients had lower quality of life scores compared with normal persons that were highly statistically significance as regard all six domains of the HRQOL questionnaire (P~ ٠.٠٠١), and increasing with increased severity of liver disease. **Conclusion:** Patients with HCV infection had neuropsychiatric problems. These problems decrease quality of life on those patients**.**

Keywords: Hepatitis C virus (HCV), chronic liver disease (CLD), Health related quality of life.

Introduction

Hepatitis C virus (HCV) infection is a serious global health problem that affects ١٨٠ million people worldwide. Hepatitis C virus causes acute and chronic hepatitis which can eventually lead to permanent liver damage and hepatocellular carcinoma[١]. HCV infection is considered a systemic disease. Among the extrahepatic manifestations, neuropsychiatric disorders have been reported in up to ٥٠٪ of chronic HCV infected patients[٢]. Patients with cirrhosis frequently showed mild extrapyr-amidal signs secondary to alterations of basal ganglia circuitry[٣]. HRQOLis becoming a key component in the estimation of the disease impact and outcome,evaluation of any therapeutic intervention[٤].

Subjects and methods

The study included ٦٠ patients with chronic HCV related chronic liver disease, in addition to ٢٠ healthy persons matched for age, sex and educational level. The patients with chronic liver disease were randomly selected from the outpatient clinic and the in-patient of the Tropical Medicine department, Minia University Hospital. The controls were randomly selected from outpatient clinic and relatives of the patients admitted to our department. The studied groups included (Patients with chronic hepatitis n = ٢٠;

patients with liver cirrhosis n = ٤٠; control group included ٢٠ apparently healthy persons). Patients with liver cirrhosis were classified according to Child Poughclassification into: Child A, Child B, Child C.Both patients and control groups were subjected to the following: clinical assessment and laboratory investigations in the form of (complete Liver function tests, complete blood count, serological investigations, abdominal ultrasonography). Neuro-psychiatric assessment using: ١- Unified Parkinson's Disease Rating Scale (for detection presence of extra pyramidal signs), ٢-Chronic liver disease Questionnaire (for assessment of HRQOL).

All analyses were performed with version ١٦ of Statistical Package of Social Science (SPSS).Qualitative data were expressed as proportions, while quantitative data were expressed as mean ± standard deviation (SD). Qualitative data were analyzed by Chi square (χ^2) test. Statistical significance was defined as p values less than ٠.٠٥.

Results

The present study included sixty patients in addition to twenty apparently healthy volunteers who served as a control group. All results summarized in tables (١-٩). Comparison between the studied groups regarding frequency of extra pyramidal signs are shown in tables (١, ٢): There was statistically significant absence of extrapyra-midal signs in patients with Chronic hepatitis and control group, but there was extrapyra-midal signs were detected in cirrhotic patients (P~ ٠.٠٠١). The cirrhotic patients (child B and C) showed high significant frequency of extrapyramidal signs than those with child A. The difficulty in dressing and rigidity were the most frequent extrapyramidal manifestations in cirrhotic patients (١٠٪). Comparison between the studied groups regarding HRQOL, according to chronic liver disease questionnaire are shown in tables (٣-٩): The worst scores of the questionnaire was found in liver cirrhosis Child (A, B, C patients) and CHC patients in comparison to control group with highly statistically significant (P~٠.٠٠١). This impairment was greater with increased severity of liver diseaseexcept worry was found in chronic hepatits patients than other studied groups.

Table (١): comparison between the studied groups regarding frequency of extra pyramidal signs

Extra pyramidal	Controls	Chroinc hepatitis	Child A	Child B , C	P
	N=٢٠	N=٢٠	N=٢٠	N=٢٠	
Absent Present	٢٠(١٠٠٪)	٢٠(١٠٠٪)	١٨(٩٠٪) ٢(١٠٪)	١١(٥٥٪) ٩(٤٥٪	٠.٠٠١*

Table (٢): Frequency of extrapyramidal manifestations in cirrhotic patients

Extra pyramidal signs	Child A	Child B , C	P
No	١٨(٩٠٪)	١١(٥٥٪)	٠.٢
Dressing	-	٢(١٠٪)	
Hygiene	-	١(٥٪)	
Freeze with walking	-	١(٥٪)	
Tremor at rest	١(٥٪)	١(٥٪)	
Rigidity	١(٥٪)	٢(١٠٪)	
Arising the chair	-	١(٥٪)	
Brady kinesia	-	١(٥٪)	

Table (٣): comparison between the studied groups regarding HRQOL, according to chronic liver disease questionnaire

HRQOL Score	Controls	Chronic hepatitis	Child A	Child B , C	P
Range	٧	٥-٦	٣-٦	١-٤	٠.٠٠١*
Mean±SD	٧±٠	٥.٣±٠.٤	٤.٣±٠.٨	٢.٢±٠.٨	

Table (٤): comparison between the studied groups regarding different DOMAINS of chronic liver disease questionnaire

AS	Controls	Chronic hepatitis	Child A	Child B , C	P
Range	٧	٥-٦	٣-٦	١-٤	٠.٠٠١
Mean±SD	٧±٠	٥.٢±٠.٨٥	٤.٣٥±٠.٩٨	٢.٤٥±١.٠٥	

Table (٥): comparison between the studied groups regarding different DOMAINS of chronic liver disease questionnaire

FA	Controls	Chronic hepatitis	Child A	Child B , C	P
Range	٧	٤-٦	٢-٦	١-٤	٠.٠٠١
Mean±SD	٧±٠	٥.١±٠.٧٤	٤.٣±١.١	٢.١±١.١٥	

Table (٦): comparison between the studied groups regarding different DOMAINS of chronic liver disease questionnaire

SS	Controls	Chronic hepatitis	Child A	Child B , C	P
Range	٧	٤-٧	٢-٦	١-٥	٠.٠٠١
Mean±SD	٧±٠	٥.٣±٠.٧٤	٤.٣٥±١.٢٢	٢.١±١.٠٣	

Table (٧): comparison between the studied groups regarding different DOMAINS of chronic liver disease questionnaire

AC	Controls	Chronic hepatitis	Child A	Child B , C	P
Range	٧	٤-٧	٣-٦	١-٥	٠.٠٠١
Mean±SD	٧±٠	٥.٤٥±٠.٦٨	٤.٥±٠.٨٢	٢.٣±١.٠٨	

Table (٨): comparison between the studied groups regarding different DOMAINS of chronic liver disease questionnaire

EF	Controls	Chronic hepatitis	Child A	Child B , C	P
Range	٧	٥-٧	٣-٦	١-٤	٠.٠٠١
Mean±SD	٧±٠	٥.٦±٠.٦٨	٤.٣±٠.٨	٢.٣±٠.٨٦	

Table (٩): comparison between the studied groups regarding different DOMAINS of chronic liver disease questionnaire

WO	Controls	Chronic hepatitis	Child A	Child B , C	P
Range	٧	١-٤	٤-٧	٣-٦	٠.٠٠١
Mean±SD	٧±٠	٢.٣±٠.٩٢	٥.٣±٠.٦٥	٤.٣±٠.٨	

Discussion

Neuropsychiatric disorders had been reported in up to ٥٠٪ of chronic HCV infected patients, and range from peripheral neuropathy to cognitive impairment[٢]. In the study by Burkhard et al., (٢٠٠٣)[٥] revealed the now classical, symmetrical hyperintensities on T١-weighted imaging in globuspallidus and, additionally, in substantianigra. The authors went on to suggest that this previously unreported finding of signal hyperintensities in substantianigra was characteristic of cirrhotic patients who manifested Parkinsonian symptoms. The present study assessed presence of extra pyramidal signs in patients with chronic liver diseases. The data showed that cirrhotic patients had mild extrapyramidal signs as bradykinesia, rigidity and resting tremors. Jover et al., (٢٠٠٣)[٦] who had found extrapyramidal signs in ٤٧.٨٪ of cirrhotic patients. Spahr, et al., (٢٠٠٠)[٧] also had similar results, who reported that advanced cirrhotic patients had mild extrapyramidal signs secondary to alterations of basal ganglia circuitry. Basal ganglia impairment is mainly related to manganese deposition in this cerebral structure. Butterworth (٢٠١٣)[٨], reported that cirrhotic patients with extrapyramidal signs have a greater cognitive impairment than patients without this neurological problem. Health related quality of life is becoming a key component in the estimation of the disease impact and outcome, and evaluation of any therapeutic intervention[٤]. Patients with chronic liver disease had significant abnormalities of HRQOL as measured by the chronic liver disease questionnaire. Chronic liver disease patients had the worst scores of the questionnaire was found in as regard all six domains of the questionnaire.in patients with liver cirrhosis Child (A, B, C patients) and CHC in comparison to control group (P~٠.٠٠١). This impairment was greater with increased severity of liver disease. Similar results were reported by Arguedas et al., (٢٠٠٣)[٩], Van der Plas et al., (٢٠٠٣)[١٠], Sherman et al., (٢٠٠٤)[١١], Teixeira et al., (٢٠٠٥)[١٢], and Sumskiene et al., (٢٠٠٦)[١٣] who concluded that HRQOL in chronic liver patients depended on disease stage and decompensated patients showed a significantly worse disease-specific and generic HRQOL than non-cirrhotic patients. This was in agreement with Miller et al., (٢٠١٢)[١٤] who demonstrated reduced HRQOL during the treatment and improved HRQOL post-treatment. Similarly, Modabbernia et al., (٢٠١٣) [١٥] found that patients with cirrhosis had lower HRQOL scores than CHC patients. These results came in contrast the study of Iwasaki et al., (٢٠٠٢)[١٦] that examined the potential syptomes in ٦٠ patients with chronic HCV in comparison with normal controls, they found no characteristic subjective symptoms in patients with HCV compared to healthy controls. In another study (Schwarzinger et al., ٢٠٠٤)[١٧], who reported that no statistically significant differences were shown between individuals who turned out to be infected and individuals who were negative. The changes in quality of life observed cannot be related exclusively to knowledge of the diagnosis, which does not appear to be the only probable explanation for such changes. Although the mechanisms remain unclear, the presence of the virus itself must be taken into account (Forton et al., ٢٠٠٣)[١٨].

Conclusions

Patients with HCV infection had neuropsychiatric problems. These problems decrease quality of life on those patients. The majority of HCV-positive patients

display alterations of concentration, attention, executive function, and memory when they are evaluated by suitable neuropsychological tests. Assessment of HRQOL is essential as a non-traditional diagnostic workup in patients with chronic liver diseases.

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