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Health-related quality of life in children with chronic hepatitis C

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KEYWORDS

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Abstract *Background:* Mood disturbances, including depression, are relatively common in the hepatitis C virus-infected population and may worsen during hepatitis C treatment, also hepatitis C virus infection is associated with decreased quality of life (QOL) and neurocognitive dysfunction in adults, but little is known about its impact on children.
Aim of the study: To assess the health-related quality of life (HRQOL), behavioral/emotional functioning, and cognitive status of children with hepatitis C infection with and without treatment.
Methods: A total of 120 children who were divided into three groups: group 1: 30 chronic hepatitis C infected children without treatment, group II: 30 chronic hepatitis C infected children under treatment with peg-interferon and ribavirin, group III: Includes 60 normal children matched for age and sex as a control group were enrolled in this case–control study. We used the Peds QLTM 4.0 generic score scale to assess the HRQOL based on a child's self- and parent proxy reports. Also assessment of childhood depression using ACDS Inventory, Arabic form based on Kovacs Children's Depression Inventory was done.
Results: There was a statistical significant difference between studied groups regarding physical, emotional, social and school functioning parameter of parents' reports and child opinion of PEDSQL score, also there was a statistical significant difference between studied groups regarding depression score as it was significantly higher in group II (hepatitis C infected children under treatment with peg-interferon and ribavirin).
Conclusion: HRQOL and depression scores were significantly increased in children with chronic hepatitis C however both were higher in children receiving treatment.

Introduction

Hepatitis C virus (HCV) infection is a serious health problem worldwide that establishes a chronic infection in up to 85% of cases.[1] Estimates of prevalence range from less than 1.0% in northern Europe to more than 2.9% in northern Africa.[2] Many publications suggest that over 15% of the people in Egypt are infected. This is ten times greater than in any other country in the world. The prevalence of HCV varies throughout the country. The available data suggests that the northern Nile Delta has the highest prevalence, ~28%. The much smaller population of upper Egypt, in the south, has a slightly lower HCV prevalence, ~ 20%. The two major urban centers,

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Cairo and Alexandria, have the lowest prevalence of ~9% and ~6%, respectively.[3] Studies of the magnitude of HCV infection in Egyptian children revealed a prevalence of 3% in upper Egypt and 9% in lower Egypt.[4]. The course of HCV infection in children is generally more benign than that seen in adults, approximately 30 percent of infected children will develop symptomatic or progressive disease and be at risk for cirrhosis and hepatocellular carcinoma later in life. However, there is emerging evidence that chronic HCV treatment in children and adolescents can yield virologic results comparable to, or even better than, those in adults.[5] HCV infection is associated with psychiatric symptoms like depression. Together with other factors (e.g. the severity of hepatic condition), two lines of evidence support an association between HCV and depression. First: patient with psychiatric disorder have higher prevalence of HCV infection. Second: patient with chronic hepatitis may have higher prevalence of psychiatric disorder including depression.[6] Antiviral treatment of HCV with IFN-alpha is associated with severe neuropsychiatric side effect such as psychosis, depression and neuropsychological dysfunction these symptoms can lead to poor compliance and the need to decrease or prematurely stop antiviral therapy.[7] Health-related quality of life (HRQOL) is a concept that relates to an individual's perception of health status in relation to the culture and value systems in which they live, in addition to their expectations, goals, concerns, and living standards. The chronic HCV literature is replete with findings of quality of life (QOL), psychological, and cognitive deficits in treatment-naïve adults as well as those receiving interferon and ribavirin therapy. However, comparatively less is known about how HCV and its treatment affect these clinical parameters in children.[8] While QOL is emerging as an important endpoint in pediatric clinical trials of HCV treatments, there is a paucity of data on other patient-oriented outcomes that are pertinent to child development and function. The inclusion of patient-oriented outcomes such as behavioral adaptation, depression, anxiety, and cognitive functioning in HCV pediatric clinical trials is important for several reasons. The impact of HCV treatments on these parameters in children is not presently known and such information will allow health professionals to better inform patients and their parents about the range of possible side effects. Also, identifying the complete range of morbidity associated with chronic HCV and its treatments may facilitate the development and implementation of psychotherapeutic or psychopharmacological interventions aimed at attenuating morbidity in these children.[9]

Subjects and methods

This was a prospective case–control study approved by the ethics committee of Benha University. Patients and their parents were informed of the purpose of the current trial and they signed informed consent forms before their enrollment. A total of 120 children, 60 chronic hepatitis C who were selected from Pediatric Hepatology department, National Liver Institute, Pediatric Hepatology clinic, Benha University hospitals and 60 healthy children selected from general population (aged 8–17 years) in the period from August 2009 to October 2013. They were divided into three groups: Group 1: Included 30 chronic hepatitis C infected children without treatment, Group II: Included 30 chronic hepatitis C infected children in the period between 12 to 24 weeks of starting treatment with peg-interferon and ribavirin. Group III: Included 60 normal children as a control group. Inclusion criteria for group I & II: Age $\leqslant$18 years, positive anti-HCV antibody, detectable serum HCV-RNA, liver biopsy showing chronic hepatitis with evidence of fibrosis, compensated liver disease (Child-Pugh Grade A clinical classification). Exclusion criteria: Other causes of acute or chronic hepatitis, liver cirrhosis, autoimmune hepatitis, positive HbsAg and known hypersensitivity to peg-IFN and ribavirin.

Methodology

Files of the patients were examined and the following data were retrieved: history, clinical examination, abdominal ultrasonography, result of liver needle biopsy, Viral markers (HCV Ab and HbsAg), complete blood picture (CBC), liver function tests: [ALT, AST and serum bilirubin (total and direct)] and serum creatinine. Psychological and behavioral assessment was done by the current HRQOL questionnaire in pediatrics that was designed by the World Health Organization (WHO) and consisted of the 23-item HRQOL generic core scales for children and teens aged 2 to 18 years old.[10] An Arabic translated questionnaire was used based on The Peds QLTM 4.0 generic core scale which is a 23-item questionnaire of self and proxy reports consisting of 4 scales to evaluate physical, emotional, social, and academic functioning.[11] A 5-point response scale ranges from 0 (never a problem) to 4 (almost always a problem). All questions are addressed twice, once for patients and once for parents, our participants were aged between 8 and 17 years and if the child or teen was unable to complete the self-report forms, the study administrator read a questionnaire aloud for them and avoided suggesting a specific answer by avoiding intonation change. Parents self-administered the PedsQLTM 4.0 after a brief instruction from the administrator. Assessment of childhood depression for our patients using ACDS Inventory, Arabic form[12] based on Kovacs Children's Depression Inventory.[13] The Children's Depression Inventory (CDI) was completed by the child and it assessed cognitive and behavioral symptoms of depression. A total score $\geqslant$12 is indicative of possible clinical depression.

Statistical analysis

Data were tabulated, coded then analyzed using the computer program SPSS (statistical package for social science) version 16. Quantitative data were presented as mean $\pm$ SD. Student's t-test was used to compare between two groups. Pearson's correlation coefficient was used to test correlation between variables and chi-square test was used to compare frequency of qualitative variables among the different groups. For all analyses, the level of significance was set at $p < 0.05$.

Results

This study included a total of 120 subjects; group I: 30 patients with chronic hepatitis C without treatment [18 males (60%) and 12 females (40%)], group II: 30 patients with chronic hepatitis C treated with peg-interferon and ribavirin [15 males (50%) and 15 females (50%)] and group III: 60 subjects were