

Depression and anxiety in chronic hepatitis B: effect of hepatitis B virus infection on psychological state in childhood

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SUMMARY: Arslan N, Büyükgebiz B, Öztürk Y, Pekcanlar Akay A. Depression and anxiety in chronic hepatitis B: effect of hepatitis B virus infection on psychological state in childhood. Turk J Pediatr 2003; 45: 26-28.

We aimed to evaluate the effect of chronic hepatitis B virus infection on the psychological state of children. Children who were carriers of hepatitis B virus (n:20) and those with chronic hepatitis B virus infection (n:20) for at least one year formed study Groups 1 and 2, respectively. Healthy children with similar demographic characteristics (n:43) were enrolled as the control group. The "Children's Depression Inventory" and "State-Trait Anxiety Inventory for Children" were used for the assessment of the extent of depression and anxiety, respectively. Then, mean depression and anxiety scores of the study and control groups were compared. In addition, the children in each group were further evaluated for depression and anxiety with respect to gender and age as prepubertal and postpubertal. The mean depression and anxiety scores of study Groups 1 and 2 and of the control group were 8.35 ± 5.6 , 8.22 ± 6.85 , 9.12 ± 5.2 (depression scores) and 32.7 ± 6.85 , 33.4 ± 10 and 34 ± 6.5 (anxiety scores), respectively. These three groups did not differ significantly from each other with respect to anxiety and depression scores ($p > 0.05$). Although there was no child with overt depression (with a depression score over 19) in study Group 2, two children in study Group 1 and one child in the control group were determined to be in overt depression. Children with chronic hepatitis B virus infection were not different with respect to depression and anxiety from children who were carriers of hepatitis B virus nor from the healthy controls.

Key words: depression, anxiety, childhood, hepatitis B virus infection.

Mood disorders are common problems in patients with chronic diseases¹. Thus, medical and neurological conditions such as cancer, hypothyroidism, lupus erythematosus, acquired immunodeficiency syndrome, anemia, diabetes and epilepsy may be accompanied by symptoms of depression and anxiety². These and other medical conditions usually impact the course of the depressive disorder, particularly when they disrupt the patient's functioning².

Anxiety and depression could develop as a drug side effect in patients using interferon for chronic hepatitis B virus (HBV) infection^{3,4}. Moreover, anxiety and depression rates have been found to be increased in adults with chronic hepatitis C virus (HCV) infection, especially in those with symptoms like fatigue and fibromyalgia, with respect to the control group⁵. However, there is no data related to the

development of anxiety and depression in children with chronic HBV infection. In this study, we aimed to evaluate the effect of chronic HBV infection on the psychological state of pre- and postpubertal children.

Material and Methods

Formation of the Study Groups

Asymptomatic carriers of HBV (Group 1, n:20) and patients with chronic HBV infection (Group 2, n:20) who had been followed up in Pediatric Gastroenterology and Nutrition Department for at least one year were evaluated for this study. The mean follow-up period was 2.55 ± 1.98 years (1-8 years) for Group 1, and 3.08 ± 0.99 years (1-10 years) for Group 2 ($p > 0.05$). Patients with chronic HBV infection who also had chronic renal failure, Evans syndrome, or who used interferon were

excluded. Written consent of the patients and their families were obtained before they completed the anxiety and depression inquiry forms. A control group of children attending local schools with similar demographic characteristics (age, gender, parent's age, family income, family education and jobs, school performance, number of siblings; Group 3, n:43) was also included in the study. There was no child in any of the groups living with a single parent. School performance and attendance of the children during the last year were questioned on inquiry forms. Since the depression and anxiety scores increase in adolescence^{1,6} and in girls², the children in all three groups were further evaluated with respect to their sex and pubertal period. Girls and boys less than 11 and 12 years old, respectively, were regarded as prepubertal children. Anxiety and depression scores of the study and control groups were compared with each other.

Scales used in the Study and Their Evaluation

1. *State-trait Anxiety Inventory for Children*: This is a self-report questionnaire consisting of two sub-scales each including 20 items evaluating anxiety. It can be used for children between 9 and 17 years. Validity and reliability studies have been performed by Ozusta Ş et al.⁷ in the Turkish pediatric population.

2. *The Children's Depression Inventory (CDI)*: This inventory can be applied to children between 6 and 17 years of age and consists of 27 items, each rated on a 0-2 point scale, and reflects the cognitive, affective and behavioral symptoms of depression. Validity and reliability studies have been performed in Turkey⁸. The cut-off score for CDI is found to be 19. The presence of suicidal

tendency was questioned by requesting the children to mark the item in the test.

Statistical Analyses

Depression scores and anxiety scores were compared by Kruskal-Wallis test between control group, HBV carriers and patients with chronic hepatitis B virus infection. Advanced analysis of the groups was performed by Mann-Whitney U test. In addition, two-way ANOVA test was used to compare depression and anxiety scores after adjusting for pubertal stage, gender and presence and type of HBV infection. A p value less than 0.05 was considered significant.

Results

The mean ages of Group 1 (7 girls, 13 boys) and Group 2 (11 girls, 9 boys) were 13.4 ± 2.6 and 13.6 ± 3 years, respectively, the mean age of the control group was 13.5 ± 2.9 years. No significant differences according to age, gender, parents' ages family income, family education or jobs were found between the three groups ($p > 0.05$). In all three groups, school attendance was satisfactory. Seven children in the control group, three patients in Group 1 and three in Group 2 had fair performance, while others had good school performance.

The mean depression and anxiety scores of the study Groups 1 and 2 and of the control group were 8.35 ± 5.6 , 8.22 ± 6.85 , 9.12 ± 5.2 (depression) and 32.7 ± 6.85 , 33.4 ± 10 and 34 ± 6.5 (anxiety), respectively. There was no significant difference in the mean depression and anxiety scores between the three groups ($p > 0.05$). Furthermore, there was no significant difference separately with regard to prepubertal and postpubertal boys and girls (Table I, $p > 0.05$).

Table I. Mean Anxiety and Depression Scores in Children

Groups	n	Anxiety (mean±SD)	Depression (mean±SD)
Chronic HBV, girl, prepubertal	3	26±3.6	7.3±9.2
Chronic HBV, girl postpubertal	4	39±9.9	7±3.1
Chronic HBV, boy, prepubertal	2	32±8.4	9±5.6
Chronic HBV, boy, postpubertal	11	34±5.5	10.1±4.6
HBV carrier, girl, prepubertal	4	35.2±9.5	9±6.3
HBV carrier, girl, postpubertal	7	35.7±8.5	9.7±8.2
HBV carrier, boy, prepubertal	3	29.6±15	9.6±8.6
HBV carrier, boy, postpubertal	6	3.33±3.7	4.6±4.3
Control girl, prepubertal	10	32.7±5.5	8.4±3.8
Control, girl, postpubertal	16	34.9±7.7	8.6±5.6
Control boy, prepubertal	6	30.6±5.5	9.5±3.6
Control, boy, postpubertal	11	37.8±7.5	10±7.9
		$p > 0.05^*$	$p > 0.05^*$

HBV: hepatitis B virus.

* Two-way ANOVA test.

Although there was no child with overt depression (with a depression score over 19) in study Group 2, two children in study Group 1 and one child in the control group were determined to be in overt depression. One patient in Group 2, four in Group 1 and two in the control group noticed that they had suicidal thoughts but stated they would not commit suicide.

Discussion

It is known that depression and anxiety can develop along with chronic diseases². The probability of depression development increases as the extent of limitation of daily activities like appetite and sleep due to chronic disease increases². Furthermore, as the symptoms related to the disease increase, the probability of development of depression and anxiety increases⁹. Thus, those patients with chronic hepatitis who also had diseases affecting other organ systems, like chronic renal failure or Evans syndrome and those receiving interferon treatment, were excluded from the study. The patients included in the study were either receiving oral lamivudine treatment (n:14) or not receiving any therapy (n:6) since they were in the immunotolerance period. Their daily activities and school performance were not limited due to chronic hepatitis.

There was no statistical difference between the patient, carrier and control group of children with respect to anxiety and depression scores. Furthermore, there was no significant difference separately with regard to prepubertal and postpubertal boys and girls. This could be due to absence of symptoms and invasive treatments, use of oral medication, no interference of the disease with school performance and detailed information concerning their disease. It is known that the risk of psychiatric disorders is lower in diseases with clear diagnosis and treatment. Chronic hepatitis is a disease that can be diagnosed clearly and patients can be sufficiently informed regarding treatment and prognosis of the disease.

Suicide is the final common pathway of many psychiatric and social problems^{1,9}. although its prevalence is low in the prepubertal period, its frequency increases in adolescence, especially among boys¹. There is a strong association between major depression and suicide^{2,9}. As such, there is an association between suicidal tendency and chronic diseases⁹. Two sisters

among our patients, one with chronic hepatitis (17 years old) and the other carrying HBV (15 years old), reported that they had suicidal thoughts but would not commit suicide. Depression scores of these sisters were 10 and 17, respectively. In addition to these sisters, three patients in the carrier group also gave similar answers. Depression scores of these patients were 18, 19 and 24. Furthermore, there were two children in the control group with suicidal thoughts, but they also reported that they would not act on the thoughts. There was no child in the patient or control group who claimed in the questionnaire that he/she absolutely had decided to commit suicide.

In conclusion, children with chronic HBV infection were not different from the age-and sex-matched controls with respect to anxiety and depression. However, the scales used in this study are used to evaluate anxiety and depression in a professional manner. Thus we believe these results indicate that our patients have been informed about their disease, thus reducing any anxiety and depression. Further studies are needed to evaluate whether these children have limitations in their daily activities due to the anxiety related to their disease.

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