Introduction

In recent years, references of pediatric patients like adult patients to health care organizations due to the complain of difficulty in daily activities due to symptoms of orthostatic intolerance are observed very often. For this reason, it is emphasized more on pediatric patients with OI and POTS and new diagnostic criteria and treatment recommendations are reported. Initially, the diagnostic criteria used in adults were used for pediatric patients for the diagnosis of OI and POTS (4). But, in the head up tilt test study conducted with healthy young volunteers in 2012, it has been detected that, when the tilt table was at upright position, in the most of the cases, in the first five minutes, heart rate increased > 30 beats / min and heart rate was measured more than 120 beats per minutes. This study showed that, the use of the adult OI and POTS diagnostic criteria were not appropriate for pediatric patients (2).

Wolfgang et al. redefined the POTS diagnostic criteria for childhood in 2012. Within the first 5 minutes that tilt table was at upright position, observation of > 40 beats / min increase in heart rate and orthostatic intolerance symptoms (dizziness, obscurations of vision) in the case was described as pediatric OI. Pediatric POTS was describes as in addition to pediatric OI criteria, measuring of the heart rate, at age of 13 and under the age of 13 as >120 beats / min and at age of 14 and over 14 years of age as 130 beats / min, within the first 5 minutes that tilt table was at upright position (3)

The goal of this study is to evaluate short-term efficacy of the therapeutic regimen composed of oral rehydration salts, propranolol in children showing orthostatic intolerance (OI) symptoms and different hemodynamic patterns during head up tilt table test.

Methods

Pediatric patients who were exposed to tilt test because of syncope and diagnosed with orthostatic intolerance (OI) syndrome were divided into groups based on their distinct hemodynamic patterns. Group I consisted of pediatric OI group, (n=28). Group 2 consisted of POTS group, (n=24). Group 3 consisted of patients meeting the criteria of OI but not showing any symptoms (control group, n=26). The patients in group 1 and group 2 were administered rehydration salt and propranolol treatment together. The patients in group 3, control subjects, were given rehydration salts treatment alone. The response rates of patients to rehydration salts and propranolol treatment were evaluated.

Patients’ response to treatment was assessed in two ways. In the first method was the comparasion of the incidence of syncope in three months before the start of the treatment with the incidence of syncope in the first three months after treatment. In the second method, it was assessed using the method of symptom score (symptom scoring) (Table 1). The typical symptoms of orthostatic intolerance were used for scoring. These were: hand tremor, vomiting, nausea, dyspnea, obscurations of vision, dizziness, palpitations, headache, chest pain and syncope. In each case, the incidence of these symptoms were questioned as pre-treatment and post-treatment and scoring (table 2). For each patient, the mean symptom scores before and after treatment were compared with each other.

Results

There were no statistically significant differences between the groups with regard to age, gender, BMI, the frequency of syncope attacks prior to the treatment. Post-treatment frequency of syncope attacks were found to be significantly reduced in all groups in comparison with pre-treatment status. The method number of pre-treatment vs. post-treatment syncope attacks were 3 (min 2 max 20) vs. 0 (min 0 max3) in group 1 (P < 0.01), 3 (min 2 max 5) vs. 0 (min 0 max1) in group 2 (P < 0.01), 3 (min 2 max 10) vs. 0 (min 0 max1) in group 3 (P < 0.01). When treatment response rates of OI group were compared with that of POTS group and control group, it was found to be statistically significantly lower than both POTS group and control group (p <0.01, p <0.01, respectively).

Conclusions

In general, therapy with rehydration salts and propranolol was found to be efficacious to reduce the frequency of syncope attacks in pediatric patients showing orthostatic intolerance disorder. When treatment response rates of OI group were compared with that of POTS group and control group, it was found to be statistically significantly lower than both POTS group and control group That the patients in OI group had lower rates of treatment response was thought to be due to that this group of patients were likely to have a distinct pathophysiology and hemodynamic pattern.