Anxiety and Depression Levels in Mothers of Children with Cerebral Palsy

Serebral Palsili Çocukların Annelerinde Anksiyete ve Depresyon Düzeyleri

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Summary

Objective: The aim of the study was to evaluate the depression and anxiety levels in mothers of children with Cerebral Palsy and relation with the functional limitations in their children.
Materials and Methods: Participant mothers were divided into two groups. All mothers of disabled children were called patient group, and mothers of healthy children were called control group. Patient group consisted of mothers of 52 children with cerebral palsy. Control group consisted of 67 mothers having healthy children. Sociodemographic characteristics were gathered using a sociodemographic form. Pediatric Functional Independence Measurement (WeeFIM) and Gross Motor Function Classification System (GMFCS) was administered to all children, Beck Depression Inventory (BDI) and State-Trait Anxiety Inventory (STAI) were administered to all mothers.
Results: BDI and STAI I-II scores of patient group were statistically higher than scores of controls ($p<0.001$). In addition, depression levels displayed negative correlation with functional independence measurement and positive correlation with GMFCS scores in the patient group.
Conclusion: Our results indicated that there is a relation between functional disability levels in children and psychological distress in their mothers. We thought that mothers of handicapped children should be given a regular psychological support. *Turk J Phys Med Rehab 2007;53:22-4*
Key Words: Cerebral palsy, anxiety, depression

Özet

Amaç: Bu çalışmanın amacı serebral palsi tanısı almış çocukların annelerinde depresyon ve anksiyete düzeyleri ve çocukların fonksiyonel kısıtlılık düzeyi arasındaki ilişkinin araştırılmasıydı.
Gereç ve Yöntem: Araştırmaya dahil edilen anneler 2 gruba ayrıldı. Yeti yitimi olan çocukların anneleri hasta grubu, sağlıklı çocukların anneleri kontrol grubu olarak isimlendirildi. Hasta grubu serebral palsili çocuğu olan 52 anne, kontrol grubu sağlıklı çocuğu olan 67 anneden oluşmaktaydı. Sosyodemografik form ile sosyodemografik bilgiler kaydedildi. Pediyatrik Fonksiyonel Bağımsızlık Ölçeği ve Kaba Motor Fonksiyon Sınıflandırma Sistemi (KMFSS) ile çocuklar, Beck Depresyon Ölçeği (BDÖ) ve Durumluk-Süreklilik Kaygı Envanteri (STAI) ile anneler değerlendirildi.
Bulgular: BDÖ ve STAI skorları hasta grubunda kontrollere göre daha yüksek bulundu ($p<0,001$). Ayrıca depresyon düzeyi WeeFIM skoru ile negatif, KMFSS skoru ile pozitif korelasyon gösteriyordu.
Sonuç: Bizim sonuçlarımız annelerde mevcut olan psikolojik sıkıntı düzeyinin, çocuklarında görülen fiziksel yeti yitimi ile ilişkili olduğunu işaret etmektedir. Fonksiyonel engelli çocuk sahibi olan annelere düzenli olarak psikolojik destek verilmesi gerektiği düşüncesindeyiz. *Türk Fiz Tıp Rehab Derg 2007;53:22-4*
Anahtar Kelimeler: Serebral palsi, anksiyete, depresyon

Introduction

Cerebral palsy (CP) is a disorder of posture and movement as a consequence of non-progressive injury to the immature brain. The estimated incidence of CP is 2.0 to 2.5 per 1000 live births in developed countries (1). Children with CP have significant limitations in the activities of daily living such as feeding, dressing, bathing, and mobility (2). Although motor dysfunction is the defining clinical feature of CP, sensory, cognitive, and verbal impairment in addition to learning difficulties and behavioral problems can also be seen in this condition. (3). Limitations can result in requirements for long-term care that far exceed the usual needs of children as they develop (1). Care giving is a normal part of being the parent of a young child whereas this

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role takes on an entirely different significance when child experiences functional limitations and possible long term dependence (4). Consequently, parents often shoulder the principal, multifaceted responsibilities of long-term disability management.

The aim of the study was to evaluate the depression and anxiety levels in mothers of children with CP and relation with the functional limitations in their children.

Materials and Methods

Subjects

During the period January-July 2006, a comparative study was conducted with 52 mothers who have children diagnosed as CP and 67 mothers who have healthy children. Inclusion criteria for the subjects were as follows: having a child with CP and living with him or her, absence of severe or chronic medical conditions (e.g., stroke, diabetes mellitus, and hypertension), absence of a history of psychological disorder, absence of application to clinic for any kind of medical support within the last 3-months. The control group consisted of 67 mothers with healthy children. Inclusion criteria for the controls were as follows: having a healthy child and living with him or her, absence of severe and chronic medical conditions, absence of patient or a disabled person living with her, absence of a history of psychological disorder or application to a clinic for medical support within the last 3-months.

Medical and developmental history of children was obtained from their parents. The functional level has been determined based on the Gross Motor Function Classification System (GMFCS). GMFCS is a classification system specifically devised for children with CP is classified into 5 groups according to gross motor movements (5).

State-Trait Anxiety Inventory (STAI 1-2) and Beck Depression Inventory (BDI) were used to evaluate the anxiety and depression levels of the mothers. The STAI is a self-report scale that measures state and trait anxiety (6). It takes 5 to 10 minutes to complete. State anxiety refers to an emotional state related to a specific moment in time. State anxiety increases in reaction to perceived danger or threat. Trait anxiety refers to anxiety as an enduring personality characteristic. Scores range from 20 to 80. The BDI is a 21-item scale that gathers information on different symptoms of depression. Higher scores imply the presence of depression (7). The demographic characteristics were recorded in both groups, and informed consent was obtained from all participants. The functional status of the children was assessed with the Functional Independence Measure for Children (8). A total score is derived by summing scores for each of its six domains, and norms are used to determine age-based abilities. Higher scores indicate better functional ability.

Statistical analysis

The values are expressed as mean±SD for the patients and controls separately. The comparisons of parameters were performed with Student's t test and correlation analyses were performed using Pearson's correlation test. A p-value<0.05 was accepted as significant. Data were analyzed using the Statistical Package for Social Sciences (SPSS 11.5, SPSS Inc, Chicago, IL).

Results

The mean age of the children with CP was 7.4 (range 5-14) years, and the mean age of the healthy children was 8.1 (range 5-14) years. As can be seen in Table 1 the mean age of the mothers in the study group (n=52) was 35.6±4.2, the mean age of the mothers in control group (n=67) was 35.0±5.64 years. In the patient group, 35.3% of caregivers had been taken psychological support previously, but only 7% of caregivers are already taking psychological support in the study period, 64.7% of the caregivers never took any psychological support. The GMFCS levels of the children with CP were level 1: 23.1% (n=12), level 2: 21.2% (n=11), level 3: 40.4% (n=21), level 4:13.5% (n=7), level 5: 1.9% (n=1). Twenty-one patients (40%) were diplegic, 20 hemiplegic (38%), 11 quadriplegic (22%) CP. The mean FIM scores were 59.2±25.2 vs 124.0±1.0 ($p<0.001$) in children with CP and controls, respectively. There were significant differences between the patient and control groups with respect to BDI scores (18.8±8.6 vs 9.1±4.8, respectively, $p<0.001$).

Mean STAI-I scores in the patient and control group were 71.9±5.7 vs 32.4±2.3 ($p<0.001$) and STAI-II scores in the patient and control group were 68.0±5.2 vs 38.4±6.3, respectively ($p<0.001$). BDI was positively correlated with GMFCS and negatively correlated with WeeFIM scores in the patient group ($r=0.725$, $r=-0.698$, respectively, $p<0.001$, for both).

Discussion

Long-term care giving can be devastating to women's finances, employment, and quality of life however only a few studies have directly addressed the effects of children with disability on the

Table 1. Demographical and clinical findings in subjects and controls

	Mothers of children with CP (Mean±SD)	**Mothers of healthy children (Mean±SD)**	**p**
Age of mother (years)	35.6±4.2	35.0±5.0	0.5
Number of children	3.8±1.1	3.8±2.3	0.8
GMFCS level	2.5±1.05	1.0±0.0	<0.001
WeeFIM score	59.2±25.2	124.0±1.0	<0.001
BDI	18.8±8.6	9.1±4.8	<0.001
STAI-1	71.9±5.7	32.4±2.3	<0.001
STAI-2	68.0±5.2	38.4±6.3	<0.001

GMFCS: Gross Motor Function Classification System, FIM: Functional Independence Measure, BDI: Beck Depression Inventory
STAI: State-Trait Anxiety Inventory. The values represent the mean±SD, *Significance was defined as $p<0.05$

mothers' psychological status. In the present study we found increased level of depression and anxiety in the mothers of children with disability. Further, depression scores of the mothers were correlated with GMFCS and WeeFIM levels in children with CP.

Ones et al. (3) suggested that quality of life in the mothers of children with CP was significantly lower and depression level was higher than those of control mothers. In another study, it has been reported that the mothers of children with CP may be at risk for depression (9). Lambrenos and co-workers (10) proposed that depression level was higher in the mothers of children with CP than in controls but there was no correlation between disability and depression level.

In the present study, our results indicated high level of depression and anxiety symptoms in the mothers of children with CP. There was a significant relation between BDI scores and the level of disability in children. Increased anxiety levels were also found in the mothers of children with CP. However there was no relation between anxiety and disability levels. Smith et al. (11) have reported that depressive symptoms observed in the mothers of children with disabilities were not meaningfully related to the children's developmental status or parent-child interaction behaviors. Recently, Dagenais and co-workers (12) investigated the correlation between caregiver stress and severity of the child's cerebral palsy. They found that caregiver stress is related with the child's disability level.

It has been suggested that there were no differences between mothers with handicapped children and mothers with healthy children in regard to anxiety symptoms (3). We observed that anxiety level was significantly higher in the mother of disabled children than in controls but not directly associated with disability level. Mothers worry about their children's future and acceptation in its social environment, these maternal emotions can cause the risk of suffering from an anxiety disorder. We thought that mothers may experience the feeling of anxiety seriously at the time of diagnosis and depressive symptoms may appear with time. Complex limitations in self-care functions in children with CP can be detrimental to psychological well-being of their mothers. According to cognitive theories, stressors play more important role in the course of depression than anxiety (13). It is possible that chronicity of the condition has an additive effect on depression, and depressive symptoms may relate to functional disability level. Further studies will be required to investigate anxiety and depressive symptoms in mothers with disabled children.

The presence of high depressive symptoms may be related to multiple factors such as disability level, socio-economic status, cultural perspective and educational level. The task of caring for a child with complex disabilities at home might be some what daunting for parents. In recent years, tremendous changes in health care system have exerted a shift toward outpatient community and home-based settings, which in turn have increased the responsibilities of informal caregivers (1). However, family caregivers especially mothers often shoulder the principal role in disability management. Raina et al. (1) suggested that psychological support is required for the family of handicapped children.

Our study showed that the mothers of children with disabilities suffered from serious psychological distress related to disability levels. In the light of these findings we thought that effective rehabilitation programs should provide sufficient opportunities for repeated follow-up interviews which offer not only information on the children's disabilities but also psychological support for the mothers. Further studies are needed to evaluate changes in the characteristics of mothers of children with disabilities.

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