Treatment of Functional Impairment in Severe Somatoform Pain Disorder: A Case Example

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Objective: To describe the assessment and treatment of severe functional impairment in a young female adolescent with somatoform pain disorder.

Methods: Treatment included an inpatient hospital admission using a rehabilitation approach and behavior modification program. Standardized assessment of functional impairment and health-related quality of life was performed at baseline and follow-up. Diagnostic evaluation and treatment costs were computed using insurance and hospital billing data.

Results: Pre-/postintervention measures of functional disability indicated significant improvement in physical and psychosocial functioning in everyday activities. Although costly, the inpatient admission decreased frequent health care use over the short term.

Conclusions: Delay in diagnosis of somatoform disorders may seriously extend children's disability and require more intensive treatment. Functional disability is a critical measure of treatment outcome in children with severe somatoform disorder. Future research concerning interventions for children with a broad range of recurrent and chronic pain symptoms can be strengthened through a focus on reducing functional disability.

Key words: somatoform disorder; children; functional impairment; pain.

Somatoform disorders are described in DSM-IV (American Psychiatric Association [APA], 1994) as the presence of physical symptoms suggesting an underlying medical condition, but the medical condition is neither found nor fully accounts for the level of functional impairment. DSM diagnoses include somatization disorder, conversion disorder, pain disorder, hypochondriasis, and body dysmorphic disorder, with related conditions including vocal cord dysfunction, reflex sympathetic dystrophy, and recurrent abdominal pain.

Somatic symptoms are common in children but diagnosable conditions are rare. In a community sample of 540 school-age children, Garber, Walker, and Zeman (1991) found that only 1.1% of children met full diagnostic criteria for somatization disorder according to DSM-III-R criteria. Similarly, the estimated rate of conversion disorders is described as less than 1% of the general population (APA, 1994).

Although there have been no controlled treatment outcome studies of somatoform disorder in children, case reports and case series have been published that describe treatment of such problems as persistent somatoform pain disorder (e.g., Lock & Giammona, 1999) and conversion reactions (e.g., Donohue, Thevenin, & Runyon, 1997; Woodbury,
DeMaso, & Goldman, 1992). Treatments successful in remediating symptoms and improving children’s functioning include rehabilitation approaches (e.g., Brazier & Venning, 1997), behavioral techniques (e.g., Campo & Negrini, 2000), relaxation techniques, and family therapy (e.g., Lock & Giammona, 1999).

Measuring Functional Impairment in Children With Severe Somatization

The key feature in most definitions of clinically significant somatization is the excessive functional impairment that results from the patient’s somatic complaints (Kellner, 1991). The majority of case reports of somatoform disorder have documented treatment efficacy through patient or parent report of physical functioning such as school attendance and activity participation (e.g., Brazier & Venning, 1997; Campo & Negrini, 2000). Follow-up is often limited to the immediate posttreatment period.

The methodological contribution of this case study is twofold. One contribution is to demonstrate the applicability of a standardized written instrument to measure child functional disability before and after treatment. The second contribution is an extended follow-up period (6 months) to demonstrate treatment effects over time.

Purpose of the Case Report

The purposes of this case report of severe somatoform pain disorder in a young adolescent are (1) to illustrate the use of standardized outcome measures of functional disability, (2) to demonstrate efficacy of rehabilitation modeling and behavioral intervention in increasing function, and (3) to present research implications for treatment of functional disability in a broad range of patients with chronic pain symptoms not fully explained by organic pathology. A related goal of the article is to report data on the cost-benefit ratio of diagnosis and treatment of a pediatric patient with severe somatoform pain disorder. Presumably, children with somatoform disorder who fail to be successfully treated could continue to have bouts of symptoms into adulthood (e.g., Walker, Guite, Duke, Barnard, & Greene, 1998) that result in inappropriate medical utilization, interference with occupational attainment, and significant costs to society.

Method

History and Diagnostic Work-Up

The patient, an 11-year-old Caucasian girl, presented with a 5-month history of whole body pain that eventually lead to paralysis of her extremities. She had become nonambulatory and totally dependent on her parents for all self-care activities over the prior 2 months. Because of the extensive immobility, there were concerns about progressive muscle wasting and contractures.

The onset of symptoms followed a documented viral infection (with evidence of Epstein-Barr viral infection). The diagnostic work-up for this patient involved pediatric office visits and subspecialty pediatric evaluation by immunology, neurology, rheumatology, and physical therapy. Results of ordered diagnostic procedures (e.g., blood work, MRI) were negative. Because the patient’s functioning continued to deteriorate, a second neurologist was consulted who recommended an acute psychiatric hospitalization. After 3 days of medical and psychiatric evaluation, the patient was discharged from the psychiatric facility with a diagnosis of severe fibromyalgia. Discharge recommendations included weekly counseling with a licensed social worker and evaluation at an adult pain center. During this time, the patient’s functioning had deteriorated to complete immobility and she was using a wheelchair. The family was directed to a third pediatric neurologist (MS), who confirmed a somatoform disorder and recommended treatment with an inpatient pediatric admission.

Inpatient Admission

Setting. The patient was admitted to the collaborative care unit (CCU) at a tertiary care children’s hospital with a diagnosis of severe somatoform pain disorder. The CCU is a subacute medical unit staffed by a medical director, a developmental and rehabilitative pediatrics specialist, a consulting neurologist, nursing staff, a dietitian, social worker, teachers, and respiratory, occupational, speech, and physical therapists. Psychology provides consultation on a referral basis.

History and Observations. The patient lived with her mother, father, and three sisters. She attended the fifth grade in a small religious school and was reported to be an above average student. She had
stopped attending school entirely several months before the hospital admission, with her parents providing tutoring at home. Parents were both employed full-time outside of the home. Family history was significant for maternal depression, and another sibling had a diagnosis of bipolar disorder and ulcerative colitis.

Several psychosocial stressors had been identified in the months preceding the patient's illness. The patient's sister reportedly experienced sexual abuse by a family friend (that had been recently revealed), and the patient experienced a tremendous personal athletic failure a month before the onset of symptoms.

Upon admission to the CCU, the patient demonstrated constant grimacing, grunting, and holding her breath in pain. She was immobile in bed except for vocalizing and moving her eyes. Her self-report of pain indicated severe pain intensity (10 of 10) in her toes, lower legs, thighs, hip, stomach, chest, head, shoulders, elbows, fingers, and thumbs. The patient was cooperative and polite to hospital staff and did not appear overly troubled by her symptoms. When asked direct questions, she stopped grunting and answered in a normal tone, even joking at times. She was receptive to the hospital admission because she felt that "someone finally believed that she needed medical help." The patient's parents and siblings showed emotional concern when the patient expressed pain and treated the patient as totally dependent on others for assistance.

**Procedures: Baseline Assessment**

*Anxiety and Depression.* The patient denied any significant anxiety symptoms (Multidimensional Anxiety Scale for Children [MASC]; March, 1997) or depressive symptoms (Child Depression Inventory [CDI]; Kovacs, 1992).

*Functional Disability.* The Functional Disability Inventory (FDI; Walker & Greene, 1991) was completed to describe the extent of restriction in performing 15 standard activities (e.g., walking to the bathroom, being at school all day, getting to sleep at night). Response categories range from "no trouble" to "impossible" to perform each activity. Scores range from 0 to 60, with higher scores indicating more disability. As seen in Figure 1, the patient's self-report and parental report indicated significant difficulty performing most activities at baseline (total score = 53 and 49, respectively).

**Treatment**

The patient was hospitalized for 22 days in the CCU. The primary intervention strategies used during the admission were staff education, rehabilitation modeling, and operant behavioral techniques. Treatment was modeled after published case descriptions provided by Brazier and Venning (1997) and Gooch, Wolcott, and Speed (1997).

The consulting psychologist (TMP), who coordinated and developed the behavioral program for the patient, conducted staff education focused on methods of communication with the patient about her pain and symptoms and use of contingent reinforcement strategies for well behavior. An article describing a rehabilitation approach to treatment of somatoform disorders (Brazier & Venning, 1997) was provided to all staff.

Approach to treatment focused on an interpre-
tation of the patient’s symptoms as physical, but amenable to full recovery through a gradual increase in function with physical and occupational therapies. Rehabilitation was coupled with contingent reinforcement for improvement in function and withdrawal of reinforcement for continuing signs of disability. Emphasis was placed on strengthening muscles and letting her pain go away of its own accord. A behavioral level system was used with the patient to provide daily contingencies for her function and achievement of daily therapy goals.

The patient participated in physical, occupational, and speech therapy and hospital school tutoring during her admission. Her schedule followed a standard school day with therapies between 7:30 a.m. and 4:00 p.m. She earned points on a daily goal card for each therapy and self-care activity completed during the day (e.g., toileting, feeding). These points resulted in different levels of privileges each day, ranging from full privileges (in which the patient could do hospital activities and see visitors in the evenings) to in-room privileges with no visitors.

Results

Symptom Reduction and Improvement in Function

Therapy goals set by physical, occupational, and speech therapists were to increase mobility and self-care, decrease pain, and reduce grunting and pitch breaks. The patient made daily progress in increasing movement in her extremities and performing self-care activities. Her upper extremity mobility returned first and led to independent feeding. A corresponding reduction in pain intensity was reported. The patient achieved goals of using normal voice quality without grunting and holding her breath. On hospital day 19, the patient ambulated independently with a walker. By hospital day 21, she was ambulating independently without assistive devices. She was discharged on day 22 because she had reached treatment goals of independent walking, self-care, and feeding.

Follow-Up

Short-Term Follow-Up. The patient returned to school on the day after hospital discharge and attended daily for the remaining 3 weeks of the school year. She began to participate in some physical activities at recess. At 1 month postdischarge, the FDI and CHQ were again administered to the patient and her parents to obtain standardized outcome data on her functional disability and quality of life. As seen in Figure 1, the patient and her mother reported marked improvement across all activities, with only “running” identified as “impossible.” CHQ responses revealed overall improvement in all domains of physical and psychosocial health. Some continuing areas of difficulty were reported as moderate limitations in the area of social roles (e.g., school and peer activities limited due to emotional and behavioral difficulties), family activities, and emotional distress for caregivers. Physical therapy reevaluation indicated that the patient had achieved normal upper extremity strength, normal balance, and showed only mild lower extremity weakness. She met physical therapy goals of being able to walk on her toes, shift weight on a balance board, and jump. Pain complaints reported by the patient were limited to challenging physical activities (e.g., walking on toes, jumping).

Six-Month Follow-Up. A 6-month postdischarge phone interview was conducted. The patient was reported to have continued to make gains in physical functioning and was attending school consistently (only two missed school days due to illness) and performing all physical activities including running, jumping, and bike riding. On the FDI, the patient and her mother (see Figure 1) reported very few limitations and that no activities were “impossible.” Teacher data confirmed the patient’s participation in gym class and physical activities at recess. The patient reported no pain or somatic complaints.

Cost Analysis

During the 5-month period of extended diagnosis and treatment prior to the inpatient admission, the patient incurred $16,314 in medical charges. These charges were for medical provider visits ($12,170), diagnostic procedures (e.g., CT scan, MRI), and medications ($4,144). The patient’s 22-day inpatient admission to the CCU totaled $29,163, including her hospital room; medical supplies; physical, occupational, and speech therapy; and psychological services. The patient was covered by private insurance with a mental health carve out.

In the 6 months postdischarge, medical costs in-
cluded primarily outpatient physical therapy and psychotherapy. Physical therapy services were provided for the first 2 months (11 visits). The patient had one follow-up visit with her neurologist. A pediatrician visit was made following a bike accident. The patient participated in ongoing psychotherapy on a weekly basis. Total costs in the 6 months post-discharge were estimated at $3,980.

These cost data indicate that severe somatoform pain disorder can be quite costly to diagnose and treat. Essentially, the cost savings of successful treatment will be realized during the second year for this patient. However, this investment of treatment interrupted the pattern of excessive medical use and should return profound savings in medical costs if a lifelong pattern of inappropriate health care use is altered.

Discussion

Somatoform disorder in children and adolescents can present diagnostic and treatment challenges to a range of professionals caring for these children, including primary care pediatricians, subspecialty pediatric providers, psychiatrists, physical therapists, and psychologists (Garralda, 1999). Findings from this case lend further support for the effectiveness of rehabilitation modeling and behavioral intervention in treatment of severe somatoform disorder in children (Brazier & Venning, 1997; Gooch et al., 1997). The patient described in this case report presented with a history of many individual factors identified in the development of somatization, such as family health problems and psychological distress (Walker & Greene, 1989), high achievement (e.g., Dvonch, Bunch, & Siegler, 1991), stressful life events, minor physical illnesses (Garralda, 1996), and inadequate medical advice or uncertainty of diagnosis.

This case report contributes to the literature on somatoform pain disorder by highlighting the standardized assessment of functional disability over time. Standardized assessment of functional disability in children with severe somatization will help to describe the patient population and presenting symptoms, to compare treatment outcomes between various studies, and to identify children who continue to demonstrate subtle functional impairment after treatment. Whereas written questionnaires such as the FDI are cost-effective and easy to implement, they will provide the most useful information used in conjunction with detailed behavioral observation.

Because functional impairment may occur with or without known organic disease, descriptions of interventions to improve functioning in children with medically unexplained symptoms have increased relevance in the pediatric psychology treatment literature. For example, intervention strategies used to decrease functional impairment in children with severe somatization may contribute to treatments to lessen the functional impact of pain in children with more common persistent pains (e.g., headaches, recurrent abdominal pain). In fact, the literature on treatment of recurrent and chronic pain in children is limited by the lack of controlled treatment studies (Walco, Sterling, Conte, & Engel, 1999) and the almost exclusive focus on symptom relief to the neglect of functional improvement (Palermo, 2000).

This case report illustrated the diagnostic uncertainty that somatization can create among pediatric medical providers, as well as the profound impairment and disability that may result from unsuccessful treatment. This combination of factors results in costly treatment approaches for somatoform disorder. However, the economic costs of severe somatization are tremendous, affecting unnecessary health care costs for medical provider visits, diagnostic procedures, and medications, as well as a significant loss of family and patient productivity. Cost data illustrated that untreated somatoform disorder in children can have a major economic impact, but with appropriate treatment, potential lifelong patterns of unnecessary health care costs may be avoided.

This study is limited by the single case pre-post treatment design. A multiple-baseline treatment design would have most effectively demonstrated the efficacy of rehabilitation modeling and behavioral treatment. However, a single case design can contribute important ideas for future research on treatment of somatoform disorders in children. As this case illustrated, future studies are needed to clarify the role of individual and family factors in the development or maintenance of somatization and functional impairment so that more focused interventions may be targeted to specific children and families.

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References