Medically unexplained symptoms in young people: The doctor's dilemma

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Medically unexplained symptoms in young people can present a challenge for primary care physicians to manage. Despite the prevalence of this clinical problem, physicians feel ill-equipped to deal with it. Families may attribute symptoms to an organic cause, despite the absence of identified pathology, and often resist considering psychosocial contributing factors. The present article outlines the key principles in the management of medically unexplained symptoms. Treatment focuses on building a therapeutic alliance with the patient and the family, the use of psychotherapeutic interventions and the role of psychopharmacology. A family-oriented rehabilitative approach to care, with a focus on functional improvement rather than symptom reduction, is emphasized.

Key Words: *Medically unexplained; Paediatric management; Symptoms*

Des symptômes médicalement inexpliqués chez les jeunes : Le dilemme du médecin

Les symptômes médicalement inexpliqués chez les jeunes peuvent représenter un défi pour le médecin traitant. Malgré la prévalence de ce problème clinique, les médecins se sentent mal outillés pour l'affronter. Les familles peuvent attribuer les symptômes à une cause organique même en l'absence d'une pathologie établie, et souvent, ils ne sont pas prêts à envisager des facteurs psychosociaux contributifs. Le présent article expose les principaux principes de prise en charge des symptômes médicalement inexpliqués. Le traitement porte sur l'établissement d'une alliance thérapeutique avec le patient et la famille, le recours à des interventions psychothérapeutiques et le rôle de la psychopharmacologie. Les auteurs font ressortir une démarche réadaptative des soins orientée vers la famille, axée sur une amélioration fonctionnelle plutôt que sur la diminution des symptômes.

CASE PRESENTATION

A 14-year-old girl presented with a two-year history of chronic, constant, knife-like periumbilical pain, without associated medical signs or symptoms. Formerly an A-student, she had not attended school for six months. She reported difficulty falling asleep 'because of the pain', but slept through the night. She denied stressful life events, emotional distress or a history of physical or sexual abuse. Multiple physical examinations, complete blood count, liver function tests, erythrocyte sedimentation rate, C-reactive protein, urinalysis, abdominal computed tomography scan and colonoscopy yielded normal values. Results of her gastroenterological, urological and gynecological consultations were also normal. The patient and her parents believed that the pain stemmed from an underlying organic cause, despite reassurance that organic factors had been ruled out. The patient was referred to an interdisciplinary medical psychiatry team for evaluation.

BACKGROUND

Virtually every physician encounters patients with medically unexplained symptoms (MUS). Primary care physicians and generalists are usually the first contacts, and must ultimately manage this chronic and distressing problem. Surveys (1) have found that 19% of presenting adult patients reported disturbing physical symptoms of more than three months' duration in the absence of explanatory physical disease. The prevalence of MUS among hospitalized patients is likely to be at least as robust as in ambulatory settings (2). In children and adolescents, 10% to 30% report chronic somatic complaints (3-5). Chronic abdominal pain has a prevalence of approximately 10% in school-aged children (6), and accounts for 2% to 4% of paediatric office visits; headache is even more prevalent, but leads to fewer office visits (7). MUS are often associated with terms such as 'functional' somatic symptoms and disorders (8), but are not synonymous with them; MUS is a descriptive term and does not imply a cause. Children with MUS are often functionally impaired in daily activities (school, sleep and social behaviour), and perceive their health status negatively (9). MUS can be associated with minor organic pathology which, however, cannot explain the severity of the symptoms or the degree of impairment. This population risks increased morbidity because of extensive testing and medical procedures resulting from overinvestigation and treatment, frequent medical and emergency department visits, and prolonged hospital admissions. Studies have linked childhood MUS

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with anxiety and depressive symptoms and disorders, both at first presentation (10) and in adulthood (11).

Although physicians recognize MUS as health problems, they feel ill-equipped to manage affected youth (12). They often report feeling pressured into persistent investigations, referrals and treatments (8), generally referring these patients to specialists for evaluations aimed at 'ruling out' disease rather than managing the patient's distress. Virtually every specialty has a medically unexplained somatic syndrome associated with an organ or a disease group of interest. Substantial overlap exists in the case definitions, shared nonsymptom characteristics of these syndromes and approach to therapy (13). Physicians are better trained in the assessment and differential diagnosis of physical complaints, and are less comfortable with the management of MUS. Therefore, the present article is chiefly devoted to principles in the management of children and adolescents with MUS.

MANAGEMENT PRINCIPLES

Engaging the patient and the family

The cornerstone of management is the engagement of the patient and the family in the task. This engagement, while challenging, is a necessary first step in building a therapeutic alliance in which the patient, family and doctor work together to achieve a common goal. Formation of an alliance with the family and the patient, both of whom may feel helpless because of the persistence of symptoms and lack of explanatory physical disease, is fundamental to management. The physician must begin by acknowledging both the symptoms' subjective reality and their impact on the child's functioning. Traditional approaches that categorize these problems as 'physical' or 'psychological' should be avoided – they can hamper assessment and treatment because sensitive patients are often embarrassed by the implication that their symptoms are psychological in origin. Some patients and families feel that they were 'dismissed' by prior clinicians, and believe that their child's symptoms were never adequately investigated. Communication from the physician that 'nothing is wrong' in the face of the child's chronic distress runs the risk of failure in alliance building. By acknowledging the patient's suffering and the family's fears, the clinician fosters a therapeutic partnership. The use of the term 'medically unexplained' supports this process and encourages families to consider a more comprehensive approach to understanding and managing the problem. This term does not imply a cause, but rather suggests that no a priori decision has been made that the problem is emotional; it simply describes the clinical situation.

Once the term has been explained to the family, the evaluating clinician should explore the family's experiences; mistrust of medical professionals may have a long and complex history. Cultural beliefs may also need to be addressed. Fear of stigma can contribute to their reluctance to engage with mental health professionals and may motivate patients, families and clinicians to push for potentially dangerous and unnecessary medical investigations to validate the child's complaints. As the patient and their family feel comfortable with the term 'medically unexplained', they become more receptive to considering both psychosocial and organic factors, which is a comprehensive approach to the understanding of the problem.

Patient and family as therapeutic allies

When the symptoms are severe and disabling, a family-based interview should be arranged to gather information from patients and parents (and sometimes siblings). This process enhances communication by creating a supportive and safe environment in which both medical and psychosocial issues can be explored. It is often the first time that parents hear their children describe their symptoms in the context of their feelings or their struggle to cope in various aspects of their lives, including school, sleep and social behaviour. The interview also gives other family members an opportunity to discuss their own stress. Emotional issues that may have triggered the onset of the symptoms or contributed to their persistence, particularly the recent death of an extended family member, can be explored.

Other health care professionals, teachers and school nurses can also provide important information, with due regard paid to issues of confidentiality. Because multiple symptoms are often the rule, the examiner should review other symptoms and complaints and identify their timing, context and characteristics. An individual interview should be conducted, with attention paid to associated emotional symptoms and disorders, especially those related to anxiety or depression. Family perceptions are also relevant because family members often view youth with MUS as vulnerable (physically or emotionally) (14). Parents may inadvertently reinforce somatic complaints with attention, rewards or opportunities to avoid unpleasant activities or school (15,16). Associated learning difficulties or peer problems can reinforce somatic symptoms by justifying absenteeism or poor performance (15). Assessment for negative life events, notably maltreatment, is mandatory, particularly for youth suffering from conversion symptoms, genitourinary complaints and chronic polysymptomatic somatization (17). Family history of functional somatic syndromes, chronic physical illness, disability and psychiatric disorder should also be explored, as well as marital conflict and parent-child relationship problems.

The role of medical tests

Unrecognized physical disease must always be considered (18,19). Reviewing recent medical records and performing a careful medical history and examination are foundational, and will strengthen the trust of the family. If additional evaluation is thought necessary, avoid superfluous tests and procedures (20). Overtesting can suggest that the diagnosis is uncertain, and makes it difficult to reassure patients and families that unrecognized physical disease is unlikely. On the other hand, regular but short medical 'check-ins' can monitor important changes that may require follow-up.

This process gives the doctor confidence to reduce the number of physical investigations and reassures the family that possible organic causes have not been dismissed. It is important to note that MUS can coexist with or develop after a documented physical disease or accidental injury (eg, irritable bowel syndrome following bacterial enteritis) (21).

The role of emotional factors and psychiatric disorders

Psychiatric disorders should be suspected, given high rates of comorbid anxiety and depressive disorders in youth with MUS (18).

If an anxiety or depressive disorder is suspected (21), some primary care physicians will administer treatment themselves, particularly if they are supported by a consulting psychiatrist or psychologist. In more severe cases, the patient and family may be referred to a mental health professional for treatment. In either case, the primary physician can help guide the family away from a preoccupation with physical symptoms and toward an exploration of psychosocial factors that may contribute to their symptoms and functional impairment.

MUS are considered 'functional' when they are subjectively real and occur outside the patient's sense of voluntary control. Current psychiatric nosology considers functional somatic syndromes representative of a somatoform disorder or an anxiety or depressive disorder (21). Physical symptoms should be considered 'functional' under a variety of conditions (22). These 'clues' do not constitute proof because all symptoms could be associated with physical disease, but a constellation of them is most convincing. Psychological factors affecting medical condition are diagnosed when the symptoms are judged as part of a general medical condition worsened by emotional or psychological factors. In factitious disorder, physical symptoms are fabricated, feigned or self-inflicted. In factitious disorder by proxy, a parent or caretaker feigns, simulates or causes disease in a child. Malingering is the deliberate feigning, simulation or production of physical symptoms in pursuit of an external incentive (eg, avoidance of punishment or financial gain). Inconsistencies or apparent fabrications in history or presentation, as well as medical records hand-carried by a parent, should provoke suspicion.

Establishing a diagnosis: Reassurance and education

The clinician should discuss the diagnosis only after reviewing key symptoms noted and attempting to reach consensus with the patient and their family on the problem's nature and scope. The diagnosis should be discussed frankly, and any uncertainties should be explored. Additional medical workup should be avoided unless clinical status changes or new information becomes available. Low-risk investigation may sometimes be needed to reassure the patient and their family so that treatment can proceed. Education about functional somatic syndromes and the child's specific condition should follow, and the importance of working together should be emphasized.

SPECIFIC TREATMENT INTERVENTIONS

Current therapeutic approaches to paediatric functional somatic syndromes are based on clinical experience and expert opinion rather than randomized, controlled trials of intervention. If clinical consensus is to be believed, some common elements of intervention appear useful (22,23).

Empowering the parents and child

Both the patient and their parents should be empowered by encouraging their belief that they can work together toward recovery. Guiding the parents to focus on coping strategies and increasing the child's ability to function, helps the patient and their family gain a sense of control over the symptoms. Successful parenting strategies often strike a balance between protection and serving as a 'life coach'; a parent may protect a child with chronic abdominal pain and sleep disturbance by allowing them into the parental bed (protector) or walking them to their room with the message that they believe that the child can cope (life coach). Emphasizing protection can reinforce the child's illness behaviours; assuming the role of life coach can help the child overcome adversity.

Successful management depends on effective communication among the professionals caring for the child. Ideally, a single physician coordinates the child's care and serves as the hub for arranging specialty consultations, tests, procedures and treatments, as well as communicates with the school. Collaboration with teachers and school nurses can be critical in designing a rehabilitative plan. What constitutes a legitimate medical excuse for school absence should be defined 'up-front' with the child, family and school. Absence without an excuse can then be managed as truancy. Regular visits with the physician can reassure the patient and the family by showing that the child need not 'be sick' to visit a reassuring attachment figure.

Psychotherapeutic treatment

Common to most treatment is the rehabilitative approach, which discourages a focus on symptomatic relief and encourages the patient to return to usual activities and responsibilities (18). The patient and family are directed away from finding a 'cure', to finding ways to cope with the condition. This approach challenges parental beliefs that the child is an 'invalid' or weakling, and emphasizes the child's health and ability to manage usual activity through courage and hard work. Physical therapy can sometimes prove helpful (19,24,25). School attendance and performance should be critical indicators of developmentally appropriate functioning, and homebound school instruction should be avoided. The importance of school should be respected by scheduling follow-up visits outside school hours.

Several studies have examined cognitive-behavioural therapy (CBT) in treatment of youth with MUS (26-29) and fatigue (30-32). The rehabilitative approach emphasized above can provide the foundation for successful CBT. The CBT-based approach includes self-monitoring, self-management skills (eg, relaxation training), coping skills, behavioural activation and the differential reinforcement of healthy behaviour, as well as cognitive restructuring. Behavioural methods and operant conditioning are common to most successful interventions, notably rewarding health-promoting behaviours and functional improvement, discouraging illness-related behaviours and impairment, and removing restrictions imposed by illness – contingent on functional improvement (33,34). Behavioural intervention will only work if parents are fully 'on-board' and their fears about the child's illness are addressed. Family intervention has been advocated, although not well-studied (35).

In summary, psychotherapy for youth with MUS begins by helping the patient and their family feel less threatened by the child's somatic symptoms, typically through reassurance and psychoeducation, and by emphasizing the child's competence and self-worth. Clinicians also try to minimize the child's emotional reactions to environmental triggers, and promote coping by encouraging active strategies such as acceptance, distraction and self-encouragement, while discouraging passive strategies such as avoidance and denial.

Psychopharmacological treatment

In the absence of definitive randomized controlled trials using psychoactive medications for the treatment of paediatric functional somatic syndromes, psychopharmacological treatment has largely been based on adult experience and clinical anecdote. It may still be worth considering if psychotherapeutic interventions fail in the treatment of comorbid psychiatric disorder and as an option in functional pain, gastrointestinal symptoms or fatigue. Pharmacological management is well-suited to general medical settings, and is consistent with typical medical practice. Some patients and families may prefer medications to psychotherapeutic interventions. Placebo or sham interventions should not be used in youth with MUS for ethical and practical reasons.

Antidepressants have aroused interest as treatment for youth with functional somatic symptoms partly because most affected youth suffer from comorbid anxiety and/or depression (9,36) – disorders that respond to antidepressants, particularly selective serotonin reuptake inhibitors (37). Experience and research with adults suggest that the active treatment of comorbid anxiety and depression can benefit associated somatic complaints (38); antidepressant medications have been shown to relieve many functional somatic symptoms and complaints (39,40). Although controlled trials are lacking, an open trial (41) using citalopram as treatment for functional abdominal pain found it to be promising for the treatment of pain, associated somatic symptoms, and comorbid anxiety and depressive symptoms. Patients and families should understand that antidepressant medications for paediatric functional somatic symptoms are used off-label, and they should be informed of their risks and benefits (including the 'black box warning' that antidepressant use may be associated with suicidal impulses in a small proportion of children and adolescents). Tricyclic antidepressants are commonly used to manage functional abdominal pain and headache (42), but the relative lack of controlled paediatric trials in youth, along with reports of sudden death, toxicity and relative lack of efficacy for comorbid psychiatric disorders, argues against their use (43).

Antipsychotic medications such as chlorpromazine, prochlorperazine and haloperidol have been efficacious in the acute management of adult migraine, and may be worth considering in paediatric migraine, nausea or vomiting. Various medications have been used to reduce the frequency, severity and duration of paediatric headache. Studied agents for paediatric migraine include cyproheptadine; beta-blockers, such as propranolol; the antidepressants amitriptyline and trazodone (44); and anticonvulsants such as divalproex sodium, levetiracetam (45) and topiramate, but firm conclusions about efficacy cannot be drawn due to insufficient evidence (46). Benzodiazepines, such as clonazepam or lorazepam, may help youth with physical symptoms associated with anxiety and emotional arousal, but only for short time periods because they can be addictive. When symptomatic relief occurs, it may help to reassure the patient and the family, as well as demonstrate the potential impact of emotional activation on somatic symptoms and distress (47).

CONCLUSION

The previous case described illustrates one particular twist on a problem common to every branch of paediatric medicine – a child suffering from physical symptoms associated with functional disability in the absence of adequate explanatory physical disease. The straightforward approach to this patient focuses on establishment of a therapeutic alliance with the parents and the child, and acknowledging the reality of the child's suffering in both subjective and objective terms. This approach entails educating the child and the family about what is currently known and unknown about these common presentations and their management. It also addresses comorbid emotional disorders without dismissing or 'explaining away' the patient's physical distress, and instills hope and positive expectations while applying the best interventions available. Undoubtedly, clinical research will enable management practices to be expanded and refined for this patient population.

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REFERENCES

1. Peveler R, Kilkenny L, Kinmonth A. Medically unexplained physical symptoms in primary care: A comparison of self-report screening questionnaires and clinical opinion. J Psychosom Res 1997;42:245-52.
2. Fink P. The use of hospitalizations by persistent somatizing patients. Psychol Med 1992;22:173-80.
3. Viner R, Christie D. Fatigue and somatic symptoms. BMJ 2005;330:1012-5.
4. Hyams JS, Burke G, Davis PM, Rzepski B, Andrulonis PA. Abdominal pain and irritable bowel syndrome in adolescents: A community-based study. J Pediatr 1996;129:220-6.
5. Zuckerman B, Stevenson J, Bailey V. Stomachaches and headaches in a community sample of preschool children. Pediatrics 1987;79:677-82.
6. Chitkara DK, Rawat DJ, Talley NJ. The epidemiology of childhood recurrent abdominal pain in Western countries: A systematic review. Am J Gastroenterol 2005;100:1868-75.
7. Starfield B, Gross E, Wood M, et al. Psychosocial and psychosomatic diagnoses in primary care of children. Pediatrics 1980;66:159-67.
8. Ring A, Dowrick C, Humphris G, Salmon P. Do patients with unexplained medical symptoms pressurize general practitioners for somatic treatment? A qualitative study. BMJ 2004;328:1057.
9. Konijnenberg AY, Uiterwaal CS, Kimpen JL, van der Hoeven J, Buitelaar JK, de Graeff-Meeder ER. Children with unexplained chronic pain: Substantial impairment in everyday life. Arch Dis Child 2005;90:680-6.
10. Campo JV, Bridge J, Ehmann M, et al. Recurrent abdominal pain, anxiety, and depression in primary care. Pediatrics 2004;113:817-24.
11. Campo JV, Di Lorenzo C, Chiappetta L, et al. Adult outcomes of pediatric recurrent abdominal pain: Do they just grow out of it? Pediatrics 2001;108:E1.
12. Wileman L, May C, Chew-Graham CA. Medically unexplained symptoms and the problem of power in the primary care consultation: A qualitative study. Fam Pract 2002;19:178-82.
13. Wessely S, Nimnuan C, Sharpe M. Functional somatic syndromes: One or many? Lancet 1999;354:936-9.
14. Green M, Solnit AJ. Reactions to the threatened loss of a child: A vulnerable child syndrome. Pediatric management of the dying child, Part III. Pediatrics 1964;34:58-66.
15. Walker LS, Garber J, Van Slyke DA. Do parents excuse the misbehavior of children with physical or emotional symptoms? An investigation of the pediatric sick role. J Pediatr Psychol 1995;20:329-45.
16. Walker L, Zeman JL. Parental response to child illness behavior. J Pediatr Psychol 1992;17:49-71.
17. Rimsza ME, Berg RA, Locke C. Sexual abuse: Somatic and emotional reactions. Child Abuse Negl 1988;12:201-8.
18. Campo JV, Fritz GK. Somatoform disorders. In: Martin A, Volkmar F, eds. Lewis's Child and Adolescent Psychiatry: A Comprehensive Textbook, 4th edn. Baltimore: Lippincott, Williams & Wilkins, 2007:633-47.
19. v Dubowitz, Hersov L. Management of children with non-organic (hysterical) disorders of motor function. Dev Med Child Neurol 1976;18:358-68.
20. Goodyer I, Taylor DC. Hysteria. Arch Dis Child 1985;60:680-1.
21. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, 4th edn. Washington: American Psychiatric Association; 1994.
22. Campo JV, Fritz G. A management model for pediatric somatization. Psychosomatics 2001;42:467-76.
23. Garralda ME. Practitioner review: Assessment and management of somatisation in childhood and adolescence: A practical perspective. J Child Psychol Psychiatry 1999;40:1159-67.
24. Calvert P, Jureidini J. Restrained rehabilitation: An approach to children and adolescents with unexplained signs and symptoms. Arch Dis Child 2003;88:399-402.
25. Maisami M, Freeman JM. Conversion reactions in children as body language: A combined child psychiatry/neurology team approach to the management of functional neurologic disorders in children. Pediatrics 1987;80:46-52.
26. Hicks CL, von Baeyer CL, McGrath PJ. Online psychological treatment for pediatric recurrent pain: A randomized evaluation. J Pediatr Psychol 2006;31:724-36.
27. Robins PM, Smith SM, Glutting JJ, Bishop CT. A randomized controlled trial of a cognitive-behavioral family intervention for pediatric recurrent abdominal pain. J Pediatr Psychol 2005;30:397-408.
28. Sanders MR, Rebgetz M, Morrison M, et al. Cognitive-behavioral treatment of recurrent nonspecific abdominal pain in children: An analysis of generalization, maintenance, and side effects. J Consult Clin Psychol 1989;57:294-300.
29. Sanders MR, Shepherd RW, Cleghorn G, Woolford H. The treatment of recurrent abdominal pain in children: A controlled comparison of cognitive-behavioral family intervention and standard pediatric care. J Consult Clin Psychol 1994;62:306-14.
30. Stulemeijer M, de Jong LW, Fiselier TJ, Hoogveld SW, Bleijenberg G. Cognitive behavior therapy for adolescents with chronic fatigue syndrome: Randomised controlled trial. BMJ 2005;330:14. (Erratum in 2005;330:820).
31. Viner R, Gregorowski A, Wine C, et al. Outpatient rehabilitative treatment of chronic fatigue syndrome (CFS/ME). Arch Dis Child 2004;89:615-9.
32. Wright B, Ashby B, Beverley D, et al. A feasibility study comparing two treatment approaches for chronic fatigue syndrome in adolescents. Arch Dis Child 2005;90:369-72.
33. Campo JV, Negrini BJ. Case study: Negative reinforcement and behavioural management of conversion disorder. J Am Acad Child Adolesc Psychiatry 2000;39:787-90.
34. Kazdin AE, Mazurick JL, Siegel TC. Treatment outcome among children with externalizing disorder who terminate prematurely versus those who complete pyschotherapy. J Am Acad Child Adolesc Psychiatry 1994;33:549-57.
35. Mullins LL, Olsen RA. Familial factors in the etiology, maintenance, and treatment of somatoform disorders in children. Fam Syst Med 1990;8:159-75.
36. Liakopoulou-Kairis M, Alifieraki T, Protagora D, et al. Recurrent abdominal pain and headache – Psychopathology, life event and family functioning. Eur Child Adolesc Psychiatry 2002;11:115-22.
37. Bridge JA, Iyengar S, Salary CB, et al. Clinical response and risk for reported suicidal ideation and suicide attempts in pediatric antidepressant treatment: A meta-analysis of randomized controlled trials. JAMA 2007;297:1683-96.
38. Simon GE, Katon W, Rutter C, et al. The impact of improved depression treatment in primary care on daily functioning and disability. Psychol Med 1998;28:693-701.
39. Fallon BA. Pharmacotherapy of somatoform disorders. J Psychosom Res 2004;56:455-60.
40. Stahl S. Antidepressants and somatic symptoms: Therapeutic actions are expanding beyond affective spectrum disorders to functional somatic syndromes. J Clin Psychiatry 2003;64:745-6.
41. Campo JV, Perel J, Lucas A, et al. Citalopram treatment of pediatric recurrent abdomnal pain and comorbid internalizing disorders: An exploratory study. J Am Acad Child Adolesc Psychiatry 2004;43:1234-42.
42. Hyams JS, Hyman PE. Recurrent abdominal pain and the biopsychosocial model of medical practice. J Pediatr 1998;133:473-8.
43. Geller B, Reising D, Leonard HL, Riddle MA, Walsh BT. Critical review of tricyclic antidepressant use in children and adolescents. J Am Acad Child Adolesc Psychiatry 1999;38:513-6.
44. Battistella PA, Ruffilli R, Cernetti R, et al. A placebo-controlled crossover trial using trazodone in pediatric migraine. Headache 1993;33:36-9.
45. Lewis D, Ashwal S, Hershey A, Hirtz D, Yonker M, Silberstein S; American Academy of Neurology Quality Standards Subcommittee; Practice Committee of the Child Neurology Society. Practice parameter: Pharmacological treatment of migraine headache in children and adolescents: Report of the American Academy of Neurology Quality Standards Subcommittee and the Practice Committee of the Child Neurology Society. Neurology 2004;63:2215-24.
46. Hershey AD, Powers SW, Vochell AL, LeCates S, Kabbouch M. Effectiveness of topirimate in the prevention of childhood headaches. Headache 2002;42:810-8.
47. Campo JV. Disorders primarily seen in general medical settings. In: Findling RL, ed. Clinical Manual of Child and Adolescent Psychopharmacology. Arlington: American Psychiatric Publishing, 2007.