Encopresis: long-term clinical outcome of 67 cases

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In this study we attempted to investigate the outcome of encopresis and to determine factors affecting prognosis. The sample consisted of 52 boys (77.6%) and 15 girls (22.4%) diagnosed as encopresis according to DSM IV diagnostic criteria. These patients were evaluated six years after their initial examination in the Department of Child Psychiatry. Clinical and demographical data were compared between initial and follow-up interviews and between patients with complete recovery and others. Fifty-six patients (83.6%) recovered completely and 11 (16.4%) continued to be encopretic after six years. Good school performance (p<0.005), high levels of parental education (p<0.005) and absence of constipation (p<0.05) were associated with favorable outcome. In addition, secondary encopretics who were diagnosed within a year from onset of the symptom recovered significantly earlier (p<0.001). Encopresis is a chronic disorder and complete recovery rates tend to increase with time. Families and primary health care providers should be informed about the treatment possibilities of encopresis for early intervention.

Key words: encopresis, constipation, children, outcome.

Encopresis is defined as a disorder characterized by repeated passage of feces into inappropriate places in a child who is at least four years old. The behavior can be involuntary or intentional, must be present for a minimum period of three months with a rate of at least once in a month, and is not due exclusively to the direct effect of a substance or a general medical condition[1]. DSM-IV also acknowledges two subtypes of encopresis: 'with' or 'without' constipation and overflow incontinence. The former corresponds to what has generally been referred to as retentive encopresis, while the latter would correspond to nonretentive encopresis[2].

Encopresis has long been recognized as common and problematic in pediatric clinics. The rate of the disorder has been estimated to be 1% to 3% in the general pediatric population[3,4]. Although this rate has been reported to be higher (4%) in developing countries[5], relatively few studies related with encopresis have been carried out in Turkey[6,7]. Despite the fact that encopresis is a chronic and relapsing problem[8,9], most of the outcome studies have limited follow-up durations. A wide range of recovery rates varying from 36% to 82%, depending on the design of

the study and the duration of follow-up, has been reported[10,11]. Variables predicting long-term outcome in encopresis are controversial: while some studies reported nonretentive encopresis, primary encopresis, duration of the symptom, behavioral problems and parental negativity as predictors of poor outcome[8,12-14], others described retentive encopresis as being negatively correlated with the prognosis[15] were unable to determine any predictors[16,17].

The aim of this referral-based study was to assess the long-term prognosis in encopresis in a retrospective design. Specifically, the following questions were addressed. (a) What are the overall outcome rates of encopresis? (b) How do the demographical and clinical variables such as age, gender, subtypes of the disorder, frequency and chronicity of symptoms, and comorbid psychiatric disorders influence the outcome?

Material and Methods

Of a group of 92 children who presented to Hacettepe University Hospital in 1995 and 1996 with fecal soiling and were referred to the Department of Child Psychiatry with a diagnosis

of encopresis, 86 [67 boys (77.9%) and 19 girls (22.1%), mean age=7.9 years, SD=2.3, range 4.1-13.7] were found to fulfill the diagnostic criteria for encopresis according to DSM-IV. Of these 86 patients, 67 were reevaluated six years after their initial presentation.

These patients were assessed initially in the pediatric outpatient clinic to rule out physical disorders by physical examination, appropriate laboratory tests and consultations with pediatric subspecialties. Psychiatric treatment procedures consisted of resolving the underlying psychosocial cause(s), using behavioral therapy to improve the bowel habits, and using supportive psychotherapy to help the child and the family deal with negative feelings. Psychoactive medications were prescribed to patients who had comorbid psychiatric disorders. In addition, dietary modification and stool softeners were administered to patients with constipation, in collaboration with the Department of Pediatrics.

Measures consisted of retrospective analysis of clinical charts and parent reports of child soiling status. For this purpose an interview form prepared by the authors was used. The first part of this form recorded the demographical and clinical data obtained at the initial visit, such as complaints of the patient, age of onset, duration of the symptoms, comorbid diagnosis, precipitating psychosocial factors, previous medical problems and follow-up information. The second part was designed to record the changes in demographical and clinical data six years after the initial interview. All of this information was confirmed with the parents.

Efforts were made to locate these 86 patients 6.1 years (SD=0.3, range 5.5 to 7) after the initial interview, and 67 (77.9%) of these families were contacted. All agreed to participate in the study. There were no statistically significant differences in demographical and clinical parameters between these patients and those who could not be contacted (22.1%, n=19). All of the 67 patients were assessed via telephone by an experienced child psychiatrist (B.P.). This assessment was standardized with the help of the interview form and took approximately 30 minutes for each subject.

Statistical analysis was performed with a computer package program (SPSS 10.10.1999). The associations of the clinical and demographical data between initial and follow-up interviews and between patients with complete recovery and others were calculated using chi-square test and t-test depending on the type of data. Fisher's exact test was applied when necessary. All tests were two-tailed and values were considered significant at P less than 0.05.

Results

The sample consisted of 52 boys (77.6%) and 15 girls (22.4%). The mean age was 8 years (SD=2.3, range 4.1-13.7) at the initial interview and 14.1 years (SD=2.3, range 9.7-20.0) at re-evaluation. Average years of schooling was 7.7 years (SD=1.7, range 4 to 11) and school performance was below average in 26 patients (38.8%) when their most recent grades at school were taken into consideration. Most of the patients came from nuclear families (89.6%, n=60) with moderate income level. Mean schooling time was 9.8 years (SD=4.4, range 0 to 15) for mothers and 12.4 years (SD=3.0, range 5 to 15) for fathers.

The mean encopresis frequency at the initial interview was 20.7 per month (SD=11.1, range 1-30). Of the 67 patients, 22 (32.8%) had primary encopresis and 45 (67.2%) had secondary encopresis. The average age of onset for secondary encopresis was 6 years (SD=1.6, range 4-10), and the mean interval between the onset of symptoms and the diagnosis was 23.2 months (SD=19.2, range 3-72).

Constipation was reported in 24 (35.8%) patients. There was at least one comorbid diagnosis in 56 (83.6%) patients in the initial evaluation according to DSM-IV. These diagnoses (cumulative rates) were: enuresis (49.3%, n=33), oppositional defiant disorder (37.3%, n=25), anxiety disorders (13.5%, n=9), attention deficit hyperactivity disorder (10.5%, n=7), conduct disorder (4.5%,n=3), stuttering (3%, n=2) and trichotillomania (1.5%, n=1).

Most of the patients (n=56, 83.6%) were found to have recovered completely at reevaluation. In the remaining 11 (16.4%) patients, the frequency of encopresis was decreased but not completely resolved in eight (11.9%) and unchanged in three (4.5%). Complete recovery occurred in an average time of 21.2 months (SD=16.7, range 1 to 60). The recovery rates at one, three and five years after the initial psychiatric interview were 41.8% (n=28), 70.1% (n=47) and 83.6% (n=56), respectively.

Clinical and demographical data were compared between initial and follow-up interviews and between patients with complete recovery and others. Complete recovery was significantly more frequent in patients without constipation. Good school performance and having highly educated parents were also found to be positively correlated with outcome (Table I). Furthermore, the time of recovery was related to the interval between onset of the symptoms and time of diagnosis: secondary encopretic patients who were referred to Child Psychiatry within a year from onset recovered significantly (t=3.62, p<0.001) earlier (1.2±0.9 vs 28±1.6 years). However, recovered and non-recovered and non-recovered patients did not differ in terms of other demographical variables like age or gender, or in terms of clinical parameters like the type or frequency of encopresis, the duration of the clinical follow-up and comorbid psychiatric disorders.

Discussion

The findings of the present study suggest that most of the patients (83.6%) with encopresis showed complete recovery six years after the initial evaluation. The recovery rates were 41.8% within one year and 70.1% within three years. These results are comparable with previous reports: most of the studies that evaluated the outcome in one year reported recovery rates varying from 36% to 51%[11,14,18-21]. Studies with longer follow-up indicate relatively higher rates of 51% after three years[22]. 62% after 4.1 years[23], 58% after 53 months[8] and 82% (14/17) after 6.8 years[10]. Complete recovery rates in our study tended to increase with the passage of time. Similarly, Loening-Baucke[23] and Rockney et al.[8] found an association between the length of follow-up and recovery, and concluded that the passage of time may be an important contributor to remission.

Table I. Demographical and Clinical Correlates of Outcome

| | Outcome of encopresis | | |
	Recovered (n=56)	Not recovered (n=11)	Statistics
Gender (male %)	76.8	81.8	$x^2=0.13$[NS]
(female %)	23.2	18.2	
Age[a] (years)	8.1 (2.3)	7.6 (2.7)	$t=0.73$[NS]
School performance[a] (below average %)	30.4	81.8	$x^2=10.25$**
Father's education (years)	12.8 (2.9)	10.2 (2.5)	$t=2.63$*
Mother's education (years)	10.2 (4.4)	7.2 (3.5)	$t=2.10$*
Type of encopresis (secondary (%)	67.9	63.6	$x^2=0.74$[NS]
Encopresis Frequency[a] (per mo)	20.9 (10.9)	19.5 (12.1)	$t=0.35$[NS]
Constipation[a] (%)	30.4	63.6	$x^2=4.42$*
Constipation[b] (%)	17.9	63.6	$x^2=10.17$**

*p<0.05, **p<0.005, [NS]Not Significant, [a]at initial interview, [b]at the time of reevaluation.
All of the numbers in the brackets are SD.

Comorbid disorders were reported to persist in 29 patients (43.3%) at follow-up: oppositional defiant disorder (19.4%, n=13), enuresis (16.4%, n=11), anxiety disorders (9%, n=6), attention deficit hyperactivity disorder (7.5%, n=5), conduct disorder (4.5%, n=3), stuttering (1.5%, n=1) and trichotillomania (1.5, n=1). In addition, six (9%) children had left school and four (6%) patients had new psychiatric complaints like depressive symptoms, hyperactivity, withdrawal and irritability. Constipation was reported in 17 (25.4%) patients at reevaluation.

Prevalence of encopresis is reported to be 1.5% between 7 to 8 years of age[24] and 0.8% between 10 to 12 years[25]. The results of these epidemiological studies also indicate the effect of maturation on remission. An additional verification for this point of view is the information that only a few patients in our study could be followed regularly. Although it is possible that recovery is the result of the initial treatment, spontaneous remission seems to be a more reasonable explanation.

Constipation, duration of the symptom, school performance of the patient and educational level

of the parents were found to be related with outcome. Patients without constipation showed a significantly better prognosis. Although there are studies contradicting this finding[8,26], Loening-Baucke[15]. showed that abnormal defecation dynamics and the severity of constipation were predictors for poor outcome in encopresis. The persistence of constipation (17/24) at reevaluation points out the prognostic importance of constipation in encopresis.

In patients who recovered completely, school performance was found to be significantly better. The association of higher intelligence with favorable outcome was observed earlier[27]. However, it is impossible to know whether encopresis precedes academic failure or vice versa. The educational level of the parents was positively correlated with outcome as well. Keeping in mind that treatment of encopresis mostly relies on the compliance[20,28], it can be speculated that educated parents might be more compliant. Parental education is also reported to be a marker for competence in a number of domains, including toilet training, and a protective factor from the stress of living in a disadvantaged family[5].

It was noticed that patients with secondary encopresis -diagnosed within a year from onset of symptoms- recovered significantly earlier than others. Previous studies also showed that duration of the symptom was negatively correlated with the prognosis both in encopresis[14] and in other psychiatric disorders[29].

On the other hand, demographic variables like age and gender, and clinical variables like the type of encopresis (primary-secondary) and comorbid psychiatric disorders were not significant prognostic factors in our study. Most of these factors were found not to be associated with outcome in previous studies as well[8,16,17]. Among these factors, comorbid psychiatric disorders have been emphasized because of their frequency in encopresis[30]. The rate of comorbid disorders in our series was high and the composition was heterogeneous. Although encopresis tended to persist in our patients with conduct disorder (2 of 3) and attention deficit hyperactivity disorder (5 to 7), the number of each group was insufficient to reach a statistically significant level and to verify previous reports that showed the association of behavioral problems with poor outcome[12,13].

It has been reported that encopresis is more prevalent in developing countries and that toilet training practices may differ[31], yet social parameters like social class, religion, and proverty score were not found to be associated with encopresis[5]. The cultural influence seems to not modify the outcome, since most of the results of the present study are similar with previous reports of Western samples.

These conclusions should be interpreted with caution because this study shares the limitations of retrospective studies in general. Accordingly, data relating to clinical parameters such as psychosocial stressors or compliance could not have been determined systematically for each subject. Similarly, the assessment via telephone may bring some difficulties in evaluating the comorbid disorders. Furthermore, the reliance on parental memory, especially regarding the parameter 'recovery time', may be questionable. However, it was reported that most of the defecation parameters could be accurately recalled[32].

Nevertheless, the size of the current series, the relatively high rate of patients who could be reevaluated and especially the length of period between the initial interview and reevaluation constitute the strengths of this study.

In summary, most of the patients with encopresis had completely recovered six years after the initial evaluation and early referral. Good school performance, having highly educated parents, and absence of constipation were associated with favorable outcome. Encopresis is a chronic disorder and complete recovery rates tend to increase with time. In order to achieve higher rates of early intervention, families and primary health care providers should be informed about the treatment possibilities of encopresis. Long-term prospective outcome studies evaluating psychosocial factors, including the cognitive development in association with biological parameters and various treatment methods, may extend the current findings.

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