

## SURVEY OF THE PREVALENCE RATE OF BEHAVIORAL DISORDERS AMONG THALASSEMIC PATIENTS IN ISFAHAN

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### ABSTRACT

Chronic diseases have been identified as predisposing factors in behavioral disorders and the prevalence of these disorders is known to be higher in patients than in control groups. Thalassemia too, plays an effective role in increasing the prevalence of behavioral disorders.

In order to recognize the prevalence of behavioral disorders in thalassemic patients, a study was performed on 257 patients (144 boys and 113 girls). A control group was considered for comparison, the members of which were chosen from healthy sisters and brothers of the patients, otherwise from their first class family members, and ultimately from their neighbours. The diagnosis of behavioral disorders was based on DSM-III-R and the required information was collected by questionnaires that were filled in by the parents and by interviewing the patients themselves. The following results were obtained in the final inspection: 1) the prevalence of separation anxiety ( $P = 0.000$ ), enuresis ( $P = 0.021$ ) and depression ( $P = 0.002$ ) was higher in thalassemic patients, and 2) other disorders under study (oppositional disorders, attention deficit disorder with hyperactivity, conduct disorder, avoidance disorder, over-anxious disorder, pica, encopresis, stuttering, elective mutism and stereotyped-habitual behaviors) did not show a significant difference regarding a  $P$ -value above 0.05.

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### INTRODUCTION

Limitations resulting from chronic diseases can often impede normal growth and development of individuals and especially those of children. Limited contact of patients with peers, for instance, may detrimen-

tally influence their social training and skills development. Chronic diseases are also associated with chronic emotional reactions, especially when accompanied by physical disability.<sup>1</sup> All family members may in this regard be entangled in anxiety and their routine activities be very much affected, and this situation will in turn influence behaviors of families and children and their interrelations.<sup>2</sup> Families of such patients develop pathologic feeling patterns such as guilt feeling, castration anxiety, and denial or inappropriate behavior with

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one's child (like overprotection).<sup>3</sup> One of the chronic diseases relatively prevalent in our community too is thalassemia which engages the child and its family with many difficulties. Like other patients suffering from chronic diseases, individuals affected by thalassemia are not immune to behavioral disorders, and psychosocial problems are prevalent among them.<sup>4</sup>

Concerning the prementioned issue, and in order to verify the hypothesis that thalassemia plays an effective role in the genesis or development of behavioral disorders, a study has been performed, the essence of which is presented in this report. Questionnaires have been applied on patient and control groups in order to reach general conclusions concerning the afore-mentioned hypothesis.

## PATIENTS AND METHODS

670 thalassemic patients have profile records at Isfahan's Seyyed-Al Shohada Hospital. 409 of these refer for blood transfusions while the other 261 patients are those who have probably died or who have been left alone by their parents or have moved to other provinces and are being managed at other centers.

Patients who were 2.5-34 years old were selected for this study and then, with a 95% confidence interval and  $d = 0.05$ , 257 patients were randomly chosen. Age patterns in case and control intervals are compared in Table I.

In order to survey the prevalence rate of behavioral disorders in thalassemic patients, the authors attempted to incorporate all the common behavioral disorders of children (except for disorders of development and learning) into a questionnaire based on DSM-III-R (Diagnostic Statistical Manual-3rd ed-Revised). A control group was also used for a better assessment, the members of which were chosen initially from healthy homogeneous sisters and brothers of the patients that were as coetaneous as possible with them, otherwise from the family members or ultimately from the patients' neighbours who had the mentioned conditions. 257 thalassemic patients (144 boys and 113 girls) were studied along with an equal number of control group individuals. Questionnaires were filled in by interviewing the parents and the patients themselves.

## RESULTS

After completion of questionnaires and extraction of results, the following data were obtained which have been presented in two separate tables: Table II, the prevalence of behavioral disorders in the group of

**Table I. Comparison between age patterns in case and control groups.**

Groups Age Pattern	Case	Control
Min (years)	2.5	3
Max (years)	34	32
Mean (years)	10.011	11.531
SD*	5.162	5.489
< 7 (years)	69**	42
7-10 (years)	96	78
> 10 (years)	92	137

\* SD: standard deviation.

\*\* number in each group.

**Table II. The prevalence of behavioral disorders among thalassemic patients and controls.**

Group Type of Disorder	Control		Patient		P-value
	percent	number	percent	number	
oppositional disorder	10	26	13.6	35	0.220
attention deficit disorder with hyperactivity	3.1	8	2.7	7	0.793
conduct disorder	2.3	6	1.9	5	0.761
separation anxiety	5.4	14	21	54	0.0
avoidance disorder	1.2	3	1.6	4	0.704
overanxious disorder	1.2	3	0.8	2	0.653
pica	1.2	3	2.3	6	0.313
encopresis	0	0	1.6	4	0.133
enuresis	7.5	19	14.8	38	0.021
stuttering	1.2	3	1.6	4	0.704
elective mutism	0	0	0	0	—
stereotyped-habitual behaviors	0.4	1	1.2	3	0.315
depression	3.9	10	11.3	29	0.002
Total	—	257	—	257	—

thalassemic patients compared with the control group, and Table III, the prevalence of behavioral disorders in thalassemic patients and in the controls according to sex.

## DISCUSSION

All chronic diseases involve the child and family in psychological stresses and can influence every aspect of the child's life.<sup>5</sup> Apart from other strains in the family, families of thalassemic patients are engaged in the specific problems of this disease as well. This situation puts them through spiritual-mental problems and leads to the development of morbid feeling patterns such as

**Table III. The prevalence of behavioral disorders in thalassemic patients and controls relative to sex.**

Sex Type of Disorder	Girls			Boys		
	P-value	control	patient	P-value	control	patient
oppositional disorder	0.093	6	13	0.738	20	22
attention deficit disorder with hyperactivity	1	1	1	0.777	7	6
conduct disorder	1	1	1	0.735	5	4
separation anxiety	0	10	31	0	4	23
avoidance disorder	0.316	0	1	1	3	3
overanxious disorder	0.561	1	2	0.156	2	0
pica	1	1	1	0.251	2	5
encopresis	—	0	0	0.132	0	4
enuresis	0.018	4	16	0.166	15	22
stuttering	0.316	1	0	0.409	2	4
elective mutism	—	0	0	—	0	0
stereotyped-habitual behaviors	0.316	0	1	0.562	1	2
depression	0.005	4	16	0.097	6	13
Total	—	113	113	—	144	144

feelings of guilt, castration anxiety, denial, and inappropriate behavior with one's child (like overprotection).<sup>3</sup> This same attitude of families towards the child can cause excessive dependence and reliance which will negatively influence his independence and put him at risk for separation anxiety. The patient's response to the somatic illness of course greatly varies between individuals<sup>1</sup> and there are various responses to chronic diseases.<sup>5</sup> Some patients experience psychosocial asthenia, while others, having the same disease severity, may undergo no psychosocial problem.<sup>1</sup> One who is well adapted to one's own somatic disease, understands its problems and difficulties, accepts treatment allocated to it, and will therefore be less subjected to mental disorders.<sup>6</sup>

In this study the following results were obtained which could issue from the above-mentioned subjects:

1. Separation anxiety rate was 21% in thalassemic patients and 5.4% in the control group. Regarding  $P = 0.000$ , this rate indicates a high prevalence of this disorder in thalassemic patients (Table I) which is probably due to overprotection of the child and producing dependence in him/her. Separation anxiety shows itself in different clinical pictures, e.g., school phobia in elementary school.<sup>7</sup> The prevalence of separation anxiety has been reported to be less than 2% in the

population and 5% in clients referred to the clinic.<sup>8</sup>

2. The rate of depression was 11.3% in thalassemic patients and 3.9% in the control group ( $P < 0.025$ ), which is suggestive of a high prevalence of depression among these subjects and shows a statistically significant difference between the two groups (Table I). Depression can be a secondary reaction to acute or chronic diseases.<sup>9</sup> The prevalence of depression disorder is about 2% in school children and about 5% in adolescents.<sup>7</sup> Estimations on the count of depression in the childhood period are of course significantly different from each other and this difference is due mainly to the difference between the criteria and assessment methods.<sup>2</sup>

3. The rate of enuresis was 14.8% (10.9% primary, 3.9% secondary) in thalassemic patients and 7.5% (4.7% primary, 2.8% secondary) in the control group which showed a statistical difference between the two groups ( $P = 0.021$ ) (Table I). It is mentioned in the literature that no organic causes have been found that result in the urine control disorder. Enuresis was seen at 5 years of age in 7% of boys and 3% of girls, at 10 years of age in 3% of boys and 2% of girls, and at 18 years of age in only 1% of boys.<sup>10</sup> The prevalence of this disorder among boys was generally twice as much as in girls.<sup>2,11</sup>

4. Regarding Table II, the above-mentioned disorders (depression, separation anxiety, and enuresis) had a higher prevalence in thalassemic girls and showed a statistically significant difference relative to girls in the control group ( $P < 0.05$ ).

5. Regarding Table II, thalassemic boys suffered from separation anxiety disorder more than the control group boys. This disorder showed a significant difference between the two groups ( $P = 0.00$ ).

6. According to Table I, the rate of other disorders under study (oppositional disorder, attention deficit disorder with hyperactivity, conduct disorder, over-anxious disorder, pica, encopresis, stuttering, elective mutism and stereotyped-habitual behaviors) did not show a statistically significant difference between control and patient groups ( $P > 0.05$ ).

Based on the above results, thalassemic patients are more exposed to some behavioral disorders. It is hoped that the conclusions of this study will be effective in the future management of these patients. Educational and psychiatric intervention may be helpful in this group of patients because there is a trend toward poor psychiatric adjustment in children with impaired understanding of their illness.<sup>12</sup> In addition, it is recommended that counseling centers be established for children afflicted with chronic diseases and their families. It is possible at these centers to enhance the child's self-confidence by encouraging and assuring his or her skills and teach families appropriate attitudes towards children as well, the consequence of which can be to produce self-confidence and independence in children and their participation in social activities. This will ultimately return more biopsychosocial equilibrium to them and their family members. Regarding thalassemic patients too, we have to bear in mind disorders such as depression, enuresis and separation anxiety, each of which will separately exert a negative influence on their personality development.

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