

Compulsions, Aggression, and Self-Mutilation: A Hypothalamic Disorder?

J. A. Yaryura-Tobias, M.D.,¹ and F. Neziroglu, Ph.D. ²

Twelve patients characterized by aggressive behavior, obsessive-compulsive symptoms, self-mutilation, sexual disorders, insomnia, and disturbances in the family constellation are described. Secondary findings in some patients included high pain threshold, abnormal EEC, and altered glucose-tolerance curves.

Nine had a past history of anorexia nervosa and four patients of psychosis. Out of eight treated cases, chlorimipramine (CLI), a potent serotonin re-uptake blocker, relieved symptoms in six patients and worsened them in two cases with a history of psychosis. A hypothalamic dysfunction related to a serotonergic imbalance is offered as a hypothesis of work.*

¹ Director of Research, Division of Research, North Nassau Mental Health Center, 1691 Northern Boulevard, Manhasset, New York 11030, U.S.A.

* Chief, Department of Experimental Psychology, Division of Research, North Nassau Mental Health Center, 1691 Northern Boulevard, Manhasset, New York 11030, U.S.A.

Mailing Address: J.A. Yaryura-Tobias, M.D., Division of Research, North Nassau Mental Health Center, 1691 Northern Boulevard, Manhasset, New York 11030, U.S.A.

²Trade Name: Anafranil. Courtesy of Ciba Labs.

INTRODUCTION

Aggression and obsessive-compulsive symptoms are seen in many neuropsychiatry conditions of organic and/or psychological pathogenesis, whereas self-mutilation is usually limited to a group of mentally retarded and/or psychotic patients. The presence of these three symptoms in a population that shares most of the secondary symptoms and the failure to find in the literature a description of this clinical entity, form the basis of this report.

CLINICAL DESCRIPTION

Twelve female outpatients, ages 14 to 39 ($x = 23.33$), were referred to the North Nassau Mental Health Center for a neuropsychiatry evaluation. All of them had symptoms of aggressive behavior, either verbal or physical, insomnia, severe sexual disorders, and family discordance. Further, they suffered from severe obsessive-compulsive symptoms including an urge to self-mutilate. Ten cut their arms, legs, chest, abdomen, and vagina, one pulled and pricked her skin causing excoriations, and one cut her cornea;

COMPULSIONS, AGGRESSION, AND SELF-MUTILATION

the average number of slashes was 38. Patients seemed to have a higher threshold of pain in general where the act of slashing was painless and ritualistic. Additional symptoms are listed in Table 1.

A concomitant diagnosis of psychosis with perceptual and paranoid symptoms was made in four patients, and of Gilles de la Tourette's Syndrome in one case. Nine out of 12 patients had in the past suffered

TABLE 1

Individual, Common Clinical and Laboratory Findings

Patient	Age	Onset	Anorexia	Bulimia	Dysmenorrhea	Polydipsia	Polyuria	Pain		EEG	5-HOGTT	Common Symptoms
								Threshold				
1*	14	12	-	-	-	-	-			Ab	Ab	1. Obsessions
2	22	10	+	?	+	-	-			N	Ab	2. Compulsions
3	20	11	+	+	+	-	-			Ab	Ab	3. Aggression
4*	20	16	+	+	+	+	+			N	Ab	4. Self-mutilation
5*	29	8	?	-	?	-	-			N	Ab	5. Insomnia
6	18	17	+	-	+	-	-			NA	Ab	6. Sexual Disorder
7	39	13	+	-	+	-	+			N	N	7. Family Discordance
8*	18	9	+	-	+	-	-			NA	NA	
9	23	13	+	+	+	+	+	N		Ab	Ab	
10	22	12	+	-	+	-	-	N		NA	N	
11	21	16	+	-	+	-	+	N		NA	N	
12	34	12	-	-	-	-	+			Ab	Ab	

* Psychosis

N = Normal

Ab = Abnormal

NA = Not Applicable

from primary anorexia nervosa according to Feighner's classification (Feighner et al., 1972), but were symptom free during our study.

This disorder, characterized by obsessive-compulsive symptoms, aggressive behavior, and self-mutilation, seems to comprise two phases: (1) an early puberal phase, usually characterized by anorexia nervosa and secondary amenorrhea, and (2) a late postpuberal phase after normalization of the appetite and menstruation mostly consisting of aggressive behavior and self-mutilation. The common denominators throughout the illness were obsessions and compulsions. At one point in their illness, patients manifested the other secondary symptoms.

Routine blood analyses including T3 and T4 were within normal limits except for one case of hyperuricemia. Two patients with coarse, yellow-orange skin and mildly enlarged hand articulations showed elevated levels of carotene. Abnormal five-hour oral glucose-tolerance tests (5-HOGTT) and nonspecific EEG changes were also observed.

TREATMENT

CLI, a tricyclic antidepressant with a definite antiobsessive-compulsive action (Yaryura-Tobias and Neziroglu, 1975), was administered to eight patients in an open study over a period of six months. The medication was given orally in divided doses ($x = 200$ mg daily), and improvement began to be observed after three weeks of therapy in six cases, while two cases with a diagnosis of schizophrenia worsened.

DISCUSSION

The main symptomatology of this group of patients consists of aggressive behavior, obsessive-compulsive symptoms, and self-mutilation; obsessions and compulsions being the common denominators throughout the illness. This clinical entity shares with primary anorexia nervosa the following: (a) anamnesis of anorexia nervosa ($N = 9$), and (b) the presence of obsessive-compulsive symptoms and disturbances of glucose metabolism which may also be

present in anorexia nervosa (Palmer and Jones, 1938; Halmi, 1974; Silverman, 1974). Furthermore, our patients reported that when they had anorexia nervosa, they manifested an urge not to eat rather than a refusal to eat or a loss of appetite.

The disturbances of behavior, sleep, sexual activity, diuresis, appetite, pain threshold, and glucose metabolism observed in these patients suggests a disorder of the hypothalamus which regulates these functions. It may be noted that some of the symptoms or signs found in our patients have already been identified with hypothalamic physiopathology (e.g., diabetes insipidus, sleep and appetite disorders, violent behavior, and stress amenorrhea). In addition, anorexia nervosa is thought to be of hypothalamic origin (Mecklenburg et al., 1974). Thus it appears that our group of patients, while not coming under the same syndrome (e.g., anorexia nervosa) may have some of the same pathophysiological pathways and/or the same malfunctioning anatomical location in the brain.

Moreover, it has been shown that the hypothalamus contains relatively high concentrations of norepinephrine and serotonin (5-HT) which is suggestive of an active role of these monoamines in its function.

Decreased excretion of 5-hydroxyindoleacetic acid (5-HIAA), a metabolite of 5-HT, has been shown to be associated with hyperactivity and aggressive behavior in children (Greenberg and Coleman, 1976). Therefore, the observed therapeutic efficacy of CLI, a potent 5-HT reuptake blocker, may indicate a 5-HT imbalance in this area of the brain. We have obtained similar therapeutic results in obsessive-compulsive disorders (Yaryura-Tobias et al., 1976) and Tourette's Syndrome (Yaryura-Tobias and Neziroglu, 1977). In addition, the administration of 5-hydroxytryptophan, a 5-HT precursor, seems to be effective in the control of self-mutilation in the Lesch-Nyhan Syndrome (Mizuno and Yasumi, 1974) and in Tourette's Syndrome (Van Woert et al., 1975) where compulsions are common.

The aggravation of our psychotic patients after CLI administration corroborates our previous

findings (Yaryura-Tobias et al., 1976) and suggests a faulty serotonin metabolism that becomes exacerbated by CLI administration.

All patients had serious difficulties in interacting at home, where parents appeared to purposely "sabotage the treatment." Therefore, family therapy (Leibman et al., 1974) could be an important co-adjunctive factor in the pharmacotherapy of these patients.

The possibility that anorexia nervosa may be part of other syndromes should be contemplated. In this report, we presented a discrete clinical syndrome with an obsessive-compulsive substratum (Yaryura-Tobias, 1977) that may help to elucidate the pathology of anorexia nervosa and also to focus upon further research in hypothalamic dysfunctions.

REFERENCES

- FEIGHNER, J.P., ROBINS, E., and GUZE, S.B. et al.: Diagnostic criteria for use in psychiatric research. *Arch. Gen. Psychiatry* 26:57-63, 1972.
- GREENBERG, A.S., and COLEMAN, M.: Depressed 5-hydroxyindole levels associated with hyperactive and aggressive behavior. *Arch. Gen. Psychiatry* 33:331-336, 1976.
- HALMI, K.A.: Anorexia nervosa: Demographic and clinical features in 94 cases. *Psychosomatic Med.* 36:18-26, 1974.
- LEIBMAN, R., MINUCHIN, S., and BAKER, L.: An integrated treatment program for anorexia nervosa. *Am. J. Psychiatry* 131:4, 1974.
- MECKLENBURG, R.S., LORIAUX, L.D., and THOMPSON, R.H. et al.: Hypothalamic dysfunction in patients with anorexia nervosa. *Medicine* 53:147-159, 1974.
- MIZUNO, T., and YASUMI, Y.: Self-mutilation in Lesch-Nyhan Syndrome. *Lancet* 1:761, 1974.
- PALMER, H.D., and JONES, M.S.: Anorexia nervosa as a manifestation of compulsion neurosis: A study of psychogenic factors. Presented at the regular meeting of the Philadelphia Psychiatric Society, Philadelphia, November 11, 1938.
- SILVERMAN, J.A.: Anorexia nervosa: Clinical observations in a successful treatment plan. *J. Pediat.* 84:68-73, 1974.
- VAN WOERT, M.H., JUTKOWITZ, R., and ROSENBAUM, D.: Serotonin and uric acid metabolism in Tourette's disease. Presented at the Association for Research in Nervous and Mental Disease, 1975.
- YARYURA-TOBIAS, J.A.: Obsessive-compulsive disorders: A serotonergic hypothesis. *J. Ortho. Psychiat.* 6:317-326, 1977.

COMPULSIONS, AGGRESSION, AND SELF-MUTILATION

YARYURA-TOBIAS, J.A. and NEZIROGLU, F.: The action of chlorimipramine in obsessive-compulsive neurosis: A pilot study. *Curr. Therap. Res.* 17:111-116,1975.

YARYURA-TOBIAS, J.A., and NEZIROGLU, F.A.: Gilles De La Tourette's Syndrome: A new clinico-therapeutic approach. *Progr. Neuropsychopharmacol.* Vol. 1, pp. 335-338,1977.

YARYURA-TOBIAS, J.A., NEZIROGLU, F.A., and BERGMAN, L.: Chlorimipramine for obsessive-compulsive neurosis: An organic approach. *Curr. Therap. Res.* 20:541-548,1976.