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Various Modes of Treatment and Prognostic Indicators for Eating Disorders

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Abstract

Prognostic indicators and administered forms of therapy were identified statistically in 46 patients with the DSM-IV diagnosis of eating disorders who were treated by the authors themselves. Poor prognostic factors included firstly the existence of personality disorders, a minimum weight lower than 30 kg, and secondly depressive episodes. On the average, more than 3 forms of therapy were administered to each patient in our clinic. Cognitive-behavioral therapy was highly effective in general. There was no difference in efficacy between strict cognitive-behavioral therapy and lenient cognitive-behavioral therapy. Supportive or analytical psychotherapy was very useful in the treatment of binge-eating/purging type of anorexia nervosa, and cognitive therapy was useful in the treatment of bulimia nervosa. The patients with full recovery received more numerous forms of therapy proven to be effective. It is important that combined modalities of treatment be offered in accordance with individual needs.

Key words: eating disorder, treatment, prognosic indicator, forms of therapy

Introduction

Eating disorder is a disease with a long course which exerts a serious influence on the patient's physical and mental health and social adaptation, and it is important to report and discuss cases treated by the authors themselves comprehensively and statistically so as to clarify many factors concerning prognosis and treatment of eating disorders. In the treatment of eating disorders, a multi-modal approach is reported to offer the best chances for success.[1-3] In the previous study,[4] we reported our own cases for the past 10 years and discussed the prognostic indicators and combined modalities of treatment for eating disorders in our clinics in detail. In the present report, we have abbreviated the previous report and indicated the responses to various modes of treatment in eating disorders.

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Subjects and Methods

The subjects of this study were 45 Japanese female patients and one Japanese male patient who were treated by the authors from 1986 to 1996 under the diagnosis of eating disorders. During this period, about 100 patients were treated by us, but some patients were excluded from this study, because they were referred to other hospitals in their course of treatment or are still under treatment in our clinics.

Based on DSM-IV,[5] the patients were classified into 5 types: Anorexia nervosa (Restricting type and Binge-eating/Purging type), Bulimia nervosa (Purging type and Non-purging type) and Eating disorder not otherwise specified. The classification was based on their main clinical pictures under treatment, and therefore there were a few cases in which the diagnosis changed from that at first presentation or from the diagnosis in this study. DSM-IV criteria[5] was used to diagnose personality disorders also. The extent of leanness was indicated by BMI (Body-Mass Index = Weight (kg)/[Height (m)]^{2}). For statistical analysis, all patients but those with eating disorders not otherwise specified were divided into 3 groups, i.e., Anorexia nervosa of restricting type (AR), Anorexia nervosaof binge-eating/purging type (AB) and Bulimia nervosa (B).

The outcome was judged by the authors at the final examination, in the light of subsequent news about a patient. The outcome was divided into 6 types: full recovery, partial recovery (high recovery, moderate recovery and slight recovery), no change and death. High recovery means that the patient recovered almost entirely with the exception of a few symptoms, such as amenorrhea or the like. Slight recovery denotes that patients' symptoms became less serious but persist. Moderate recovery indicates the intermediate state between slight recovery and high recovery.

Results

Outline and clinical pictures

Thirty-one patients with anorexia nervosa were divided into 20 AR patients and 11 AB patients. Twelve patients with bulimia nervosa included 10 patients with Bulimia nervosa of purging type (BP) and 2 patients suffering from Bulimia nervosa of non-purging type (BN). Three patients had an Eating disorder not otherwise specified. Finally the diagnosis of 2 patients with AR changed to BN, that of 1 patient with AR to AB and that of another to depression, respectively. The diagnosis of 2 patients and 1 patient with AB changed to BP and borderline personality disorder (borderline PD), respectively. The diagnosis of 1 patient with BN changed to anxiety disorder.

Age at onset in bulimia nervosa was 20.5 years old, and older than that in anorexia nervosa cases, but there was no significant difference (Table 1). Bulimia nervosa showed a significantly higher age at presentation in our clinics than AR, and these patients were inclined to consult clinics later after onset.

The average age at presentation of 23 patients without a past history of treatment (50%) was somewhat older (21.4 years old), and their average duration from onset to presentation was 1.1

Table 1. Age at onset and presentation and duration (D) of amenorrhea (years)

	AR (n = 20)	AB (n = 11)	B (n = 12)	ED (n = 46)
Age at Onset	17.4 ± 3.7	17.9 ± 4.4	20.5 ± 5.0	18.7 ± 4.8
Age at Presentation	18.9 ± 4.2*	19.6 ± 4.0	23.0 ± 3.6*	20.5 ± 4.6
D of Illness at Presentation	1.5 ± 1.3	1.8 ± 2.3	2.4 ± 1.9	1.7 ± 1.7
D of Amenorrhea	1.2 ± 1.2	0.7 ± 0.5		1.0 ± 1.0

Mean ± SD; *P < .01 AR vs. B; T-test.

Table 2. Weight and BMI

	AR (n = 20)	AB (n = 11)	B (n = 12)
Weight at Presentation (kg)	34.3 ± 3.9^{ab}	38.8 ± 4.7^{ac}	52.5 ± 4.7^{bc}
BMI at Presentation	13.8 ± 1.0^{de}	16.0 ± 1.7^{df}	20.5 ± 5.0^{ef}
Minimum Weight (kg)	31.9 ± 3.6^{g}	32.8 ± 5.2^{h}	45.1 ± 3.8^{gh}

Mean ± S.D.; T-test; $^{a}P < .01$ AR vs. AB; $^{b}P < .001$ AR vs. B; $^{c}P < .001$ AB vs. B; $^{d}P < .001$ AR vs. AB; $^{e}P < .001$ AR vs. B; $^{f}P < .001$ AB vs. B; $^{g}P < .001$ AR vs. B; $^{h}P < .001$ AB vs. B.

Table 3. Clinical pictures

	AR	AB	B	ED
Dieting	$20/20^{a}$ (100%)	$11/11^{b}$ (100%)	$7/12^{ab}$ (58%)	40/46 (87%)
Binge Eating	$9/20^{cd}$ (45%)	$11/11^{c}$ (100%)	$12/12^{d}$ (100%)	33/46 (72%)
Vomitting	$1/20^{ef}$ (5%)	$11/11^{f}$ (100%)	$10/12^{e}$ (83%)	22/46 (48%)
Depressive Episodes	10/20 (50%)	7/11 (64%)	8/12 (67%)	27/46 (59%)

χ^2-test; $^{a}P < .001$ AR vs. B; $^{b}P < .001$ AB vs. B; $^{c}P < .001$ AR vs. AB; $^{d}P < .001$ AR vs. B; $^{e}P < .001$ AR vs. B; $^{f}P < .001$ AR vs. AB.

years, because 83% of the patients with B often had no history of previous treatment and they were older. Two-thirds of patients with anorexia nervosa had experienced previous inpatient or outpatient treatment. The patients with AR were leaner than those with AB (Table 2).

In the course of AR, 45% of the patients showed binge eating (Table 3). One patient with AR with vomitting came to show the clinical picture of AB finally. More than half the patients showed depressive episodes in the course of their illness. Four patients with borderline PD, 3 patients with obsessive-compulsive PD and 2 patients with avoidant PD were found among all patients.

Five patients with AR (25%), 6 patients with AB (55%) and 6 patients with B (50%) displayed poorer social adaptation in the course of their illness, such as withdrawal from school and loss of a job. In general, the patients with binge-eating often showed much more difficulty in social adaptation.

Treatment

The duration of treatment in our clinics was the longest in the patients with AB (2.1 years in average) and the shortest in those with B (0.9 year in average), though there was no significant

difference. In the course of our treatment, half of the patients were given inpatient treatment in our or other clinics. Fifty-eight percent of the patients with anorexia nervosa were hospitalized in our clinics for 4.9 months in average, while 25% of the patients with B were hospitalized for 3.7 months in average. Patients with AB tended to have longer inpatient treatment (8.4 months in average).

In supportive or analytical psychotherapy, the aim was for patients to verbalize their conflicts and modify them through insights in order to improve their symptoms, in the context of the supportive relations provided by the therapists. Fundamentally, we used this psychotherapy in all cases, and it was effective in 43% of all cases, especially in those with AR (Table 4 and 5). It was less effective in the patients with B.

In strict cognitive-behavioral therapy, the patients are to be restricted in their movements by mutual agreement at first and be set free in accordance with their improved eating behaviors,

Table 4. Utilization rate of each therapy

	AR	AB	B	ED
Supportive or Analytical Psychotherapy	20/20 (100%)	11/11 (100%)	12/12 (100%)	46/46 (100%)
Cognitive-Behavioral Therapy (strict)	3/20 (15%)	1/11 (9%)	1/12 (8%)	5/46 (11%)
Cognitive-Behavioral Therapy (lenient)	8/20 (40%)	3/11 (27%)	2/12 (17%)	15/46 (33%)
Cognitive Therapy	16/20 (80%)	9/11 (82%)	10/12 (83%)	38/46 (83%)
Pharmacotherapy	17/20 (85%)	8/11 (73%)	9/12 (75%)	36/46 (78%)
Family Therapy	11/20 (55%)	8/11* (73%)	2/12* (17%)	23/46 (50%)

χ^2-test; *P<.05 AB vs. B.

Table 5. Efficacy of each therapy

	AR	AB	B	ED
Supportive or Analytical Psychotherapy	13/20* (65%)	3/11 (27%)	2/12* (17%)	20/46 (43%)
Cognitive-Behavioral Therapy (strict)	2/3 (67%)	0/1 (0%)	1/1 (100%)	3/5 (60%)
Cognitive-Behavioral Therapy (lenient)	6/8 (75%)	1/3 (33%)	1/2 (50%)	9/15 (60%)
Cognitive Therapy	5/16 (31%)	3/9 (33%)	8/10 (80%)	17/38 (45%)
Pharmacotherapy	6/17 (35%)	2/8 (25%)	2/9 (22%)	11/36 (31%)
Family Therapy	3/11 (27%)	4/8 (50%)	0/2 (0%)	8/23 (35%)

χ^2-test; *P<.01 AR vs. B.

in keeping with the principle of operant conditioning. Strict cognitive-behavioral therapy was used least because it requires careful consideration in the application in relation to a given patient.

In lenient cognitive-behavioral therapy, we established given goals (for example, better weight or eating behavior necessary for discharge, exercise or school attendance). In this therapy, we also attach some importance to the principle of behavioral therapy, but the principle does not necessarily take precedence over other principles or mutual relationships. This therapy was applied in 15 cases (33%) and found effective in 9 cases. In comparison with other forms of therapy, lenient cognitive-behavioral therapy showed a relatively higher efficacy and was especially effective for AR cases.

In cognitive therapy, we discussed cognitive patterns such as selective abstraction, overgeneralization or all-or-none reasoning with patients, pointing out distorted cognitive patterns and seeking to change them into more adaptive cognitions.[6] Sometimes we advised through their diaries or the "Binge-eating Diary" by Weiss, et al.[7] When patients refused to come for treatments, we sometimes wrote letters to them with advice based on cognitive therapy. Such cognitive therapy was applied to 38 patients (83%), and proved effective in 17 patients, especially those with B.

As pharmacotherapy, anti-depressants were administered most frequently, and anti-anxiety drugs were also sometimes given. Sulpiride was used in AR and Domperidone for AB and B. However, a relatively low efficacy rate (31%) was acquired through pharmacotherapy.

Family therapy was used in half of the cases. Regular consultations with families were held not in the form of the systematic approach, but according to the practical approach[8] in which the parents of patients received guidance or counseling in a supportive atmosphere, and were expected to act as co-therapists.

Outcome

Patients with AR showed full recovery most frequently, and patients with B often recovered slightly (Table 6). As a rule, 30% of all cases experienced a complete recovery and the majority of patients showed some recovery.

Discontinuance of treatment indicated the cases in which patients unilaterally discontinued treatment without any contact or consultation with therapists, and discontinuance was somewhat rare in AR (25%) but frequent in B (50%). The percentage of discontinuance was 35% in total eating disorder.

Table 6. Outcome in eating disorder

	Full R.	High R.	Moderate R.	Slight R.	No Change	Death
AR	9/20 (45%)	2/20 (10%)	6/20 (30%)	2/20 (10%)	0/20 (0%)	1/20 (5%)
AB	2/11 (18%)	3/11 (27%)	1/11 (9%)	3/11 (27%)	1/11 (9%)	1/11 (9%)
B	2/12 (17%)	3/12 (25%)	2/12 (17%)	5/12 (42%)	0/12 (0%)	0/12 (0%)
ED	14/46 (30%)	9/46 (20%)	9/46 (20%)	11/46 (24%)	1/46 (2%)	2/46 (4%)

R.: Recovery.

Prognostic Indicators

Fig. 1 shows the correlation between minimum weight and duration from onset to last examination (confirmable duration of illness) in patients with anorexia nervosa. A negative correlation was observed between them (correlation coefficient = –0.58). All 7 patients requiring more than 4 years to recover showed a minimum weight of 30 kg or less, and at the same time all 8 patients with a minimum weight of less than 30 kg had a course of illness lasting more than 3.7 years. Thus, a low minimum weight proved to be a poor prognostic factor in anorexia nervosa.

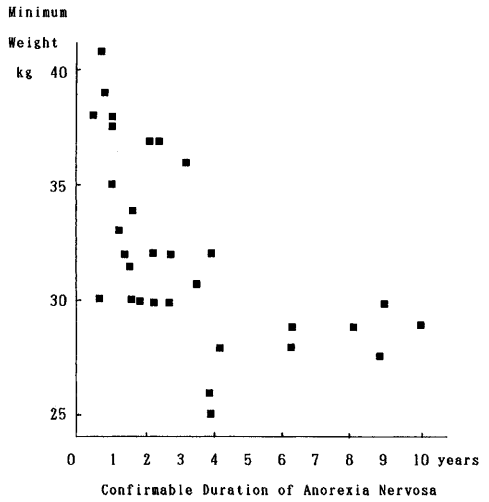

Fig. 1 Correlation between Minimum Weight and Confirmable Duration of Anorexia Nervosa

Table 7. Correlation between outcome and duration (D) of illness (years) at presentation

D of Illness	Full R.	High R.	Moderate R.	Slight R.	No Change	Death
D≦1	10/28 (36%)	7/28 (25%)	4/28 (14%)	7/28 (25%)	0/28 (0%)	0/28 (0%)
1<D≦4	3/13 (23%)	1/13 (8%)	4/13 (31%)	4/13 (31%)	0/13 (0%)	1/13 (8%)
D>4	1/ 5 (20%)	1/ 5 (20%)	1/ 5 (20%)	0/ 5 (0%)	1/ 5 (20%)	1/ 5 (20%)

The prognoses were classified in Table 7 according to the duration of illness at presentation. Among the patients with a duration of 1 year or less, the prognosis was relatively good, [i.e., a high frequency of full recovery (36%) or high recovery (25%)]. On the contrary, the longer the duration, the poorer the prognosis (i.e., low frequency of full or high recovery).

In 4 out of 9 patients with personality disorders (PD), the duration of illness was more than 6 years, and 2 patients with obsessive-compulsive PD or borderline PD died. The duration of treatment and the duration from onset to last examination were significantly longer in patients with PD (Table 8). Thus, a complication of PD obviously turned out to be one of the poor prognostic factors. Patients with depressive episodes had a longer confirmable duration of illness than those without such episodes. Depressive episodes were particularly important because they might

Table 8. Symptoms and duration (D) of illness (years)

Symptom	Conformable D of Illness	D of Treatment
Personality Disorders		
Complicated (n = 9)	5.2 ± 2.8**	3.0 ± 2.1***
Uncomplicated (n = 37)	2.6 ± 2.1	0.9 ± 1.1
Depressive Episodes		
Complicated (n = 27)	3.7 ± 2.8*	1.6 ± 1.7
Uncomplicated (n = 19)	2.2 ± 2.8	0.9 ± 1.2
Vomitting		
Complicated (n = 22)	3.4 ± 2.5	1.4 ± 1.7
Uncomplicated (n = 24)	2.7 ± 2.5	1.2 ± 1.4

Mean ± SD. *P<0.05, **P<0.01, ***P<0.001; T-test.

trigger recurrent suicidal ideation or a suicide attempt. Patients with vomitting tended to show a longer duration of illness. On the other hand, binge-eating in the course of AR rather seemed to be associated with a shorter duration of illness, because the confirmable duration of illness of patients with binge-eating was 2.3 years in average and that without binge-eating was 3.5 years.

In 14 cases with full recovery, the onset age and age at presentation were somewhat younger and they received more kinds of therapy (Table 9). Effective forms of therapy used were significantly more numerous than those in cases without full recovery.

Table 9. Comparison of patients with and without full recovery

	With Full Recovery (n = 14)	Without Full Recovery (n = 32)
Age at Onset (years)	17.1 (± 2.4)	19.3 (± 5.3)
Age at Presentation (years)	18.5 (± 3.0)	21.3 (± 5.0)
D of Illness at Presentation (years)	1.4 (± 1.4)	1.9 (± 1.9)
Duration of Treatment (years)	1.9 (± 1.7)	1.1 (± 1.4)
Number of Therapies Used	4	3.25
Number of Effective Therapies	2.1**	1.16

Values are the mean (± SD). **P<.01, Wilcoxon's Rank Sum Test.

Discussion

There have been numerous reports about poor prognostic factors of eating disorders. In this study, three poor prognostic factors were proved statistically; first of all, the existence of personality disorders and a minimum weight lower than 30 kg, and secondly the existence of depressive episodes. The existence of personality disorders and lower minimum weight have been often reported to be poor prognostic indicators,[9] but they were rarely accompanied by statistical data.

It is well known that patients with eating disorders often have depressive episodes.[10-11] In such cases, they might accept pharmacotherapy such as antidepressants, but the efficacy of the

medications seems to be inferior to that in depression by itself. So the relationship between therapist and patient comes to have great significance, and cognitive modification may become more important at the same time. It is essential that therapists should take the possibility of suicide into careful consideration when the patient becomes depressive and she does not have sufficient support from her parents. In the patients with eating disorders, the possibility of suicide should not be underestimated because they may often have depressive episodes, compulsive personality or borderline personality.[12]

In this study, more than two kinds of therapies were used in almost all cases. In patients with full recovery, 4 kinds of therapy were applied in average and about half of them were effective. The forms of therapy were more numerous than in cases without full recovery. This indicates that combined modalities of treatment in accordance with patients' needs are important in eating disorders.

When each form of therapy was discussed, cognitive-behavioral therapy turned out to be generally the most effective. There was no difference in efficacy between strict cognitive-behavioral therapy and lenient cognitive-behavioral therapy though there were few cases given strict cognitive-behavioral therapy in this study (Table 5). This result is consistent with previous reports[10,13] and important because there have been few reports comparing strict and lenient cognitive-behavioral therapy. Supportive or analytical psychotherapy and cognitive therapy were the next most effective forms of treatment. The former was effective in AR and the latter in B. Pharmacotherapy is generally considered effective in bulimia, but not in anorexia nervosa,[14,15] and it had an efficacy rate of only 22% to 35% in this study.

Thus, psychotherapy, including cognitive-behavioral therapy and cognitive therapy, plays the most important role in the treatment of eating disorders, as confirmed from this study and other reports. Cognitive-behavioral therapy or cognitive therapy has been accepted since the 1980's,[16] though there was heated debate on the perils of behavior therapy in the 1970's.[17] Lenient cognitive-behavioral therapy may be considered to be situated midway between strict cognitive-behavioral therapy and cognitive therapy theoretically. In the treatment of eating disorders, lenient cognitive-behavioral therapy may have a key role, because strict cognitive-behavioral therapy poses some difficulty or danger for cases with personality disorders or depression.[18,19] In our multimodal treatment, supportive or analytical psychotherapy forms the basis for the relationship between therapists and patients at first, supporting cognitive-behavioral therapy or cognitive therapy, and family therapy and pharmacotherapy often complement these therapeutic approaches.

The majority of patients have common cognitive patterns or characteristics such as perfectionism and fear for others, and they had pursued their own perfectionism or high estimation by others in place of mutual sympathy before treatment, feeling insufficiency owing to the complications with others. It is important how their relation to important persons such as their parents or therapists changes in the course of treatment. The women with full recovery considered the empathy and understanding provided by therapists were the most helpful in the recovery process.[20] In the reliable relations between therapists and patients, they might not come to

pursue the actual leanness but come to obtain true self or identity.[21)]

References

1) Fisher M, Golden N, Katzman D, Kreipe R, Rees J, Schebendach J, Sigman G, Ammerman S, Hoberman H. Eating disorders in adolescents: a background paper. J. Adolesc. Health 1995; 16: 420–437.
2) Ponton LE. A review of eating disorders in adolescents. Adolesc. Psychiatry 1995; 20: 267–285.
3) Woodside DB. A review of anorexia nervosa and bulimia nervosa. Curr. Probl. Pediatr. 1995; 25: 67–89.
4) Otani M, Yoshida H, Inui T, Kawamoto H, Nomura J. Combined modalities of treatment for eating disorders. In: Nomura J (Ed.), Neurobiology of depression and related disorders. Mie Academic Press, Tsu, pp 193–226, 1998.
5) American Psychiatric Association. Diagnostic and statistical manual of mental disorders, Fourth Edition. American Psychiatric Association, Washington DC, 1994.
6) Garner D, Bemis K. A cognitive-behavioral approach to anorexia nervosa. Cognitive Ther. Res. 1982; 6: 123–150.
7) Weiss L, Katzman M, Wolchik S. Treating bulimia: a psychoeducational approach. Pergamon Press, New York, 1985.
8) Shimosaka K, Tsukahara M. Therapeutic approach to the family of adolescent patinets. Jap. J. Clin. Psychiatry 1990; 19: 994–998 (in Japanese).
9) Kreipe RE. Eating disorders among children and adolescents. Pediatr. Rev. 1995; 16: 370–379.
10) American Psychiatric Association. Practice guideline for eating disorders. Am. J. Psychiatry 1993; 150: 207–228.
11) Herpertz-Dahlmann BM, Wewetzer C, Remschmidt H. The predictive value of depression in anorexia nervosa. Acta Psychiatr. Scand. 1995, 91: 114–119.
12) Braun DL, Sunday SR, Halmi KA. Psychiatric comorbidity in patients with eating disorders. Psychol. Med. 1994; 24: 859–867.
13) Touyz SW, Beumont PJ, Glaun D, Phillips T, Cowie, I. A comparison of lenient and strict operant conditioning programmes in refeeding patients with anorexia nervosa. Br. J. Psychiatry 1984; 144: 517–520.
14) Crow S, Mitchell J. Rational therapy of eating disorders. Drugs 1994; 48: 372–379.
15) Advokat C, Kutlesic V. Pharmacotherapy of the eating disorders: a commentary. Neurosci. Biobehav. Rev. 1995; 19: 59–66.
16) Fairburn C, Jones R, Peveler R, Carr S, Solomon R, OConnor M, Burton J, Hope R. Three psychological treatments for bulimia nervosa. A comparative trial. Arch. Gen. Psychiatry 1991; 48: 463–469.
17) Bruch H. Perils of behavior modification in treatment of anorexia nervosa. JAMA 1974; 230: 1419–1422.
18) Coker S, Vize C, Wade T, Cooper P. Patients with bulimia nervosa who fail to engage in cognitive behavior therapy. Int. J. Eating Disorders 1993; 13: 35–40.
19) Otani M, Yamashita K, Inoue K, Saito Y, Yamazaki K, Nomura J. On an application of the behavior restriction therapy to bulimic type of eating disorders. Jap. J. Psychiatr. Treatment 1988; 3: 537–543 (in Japanese).
20) Rorty M, Yager J, Rossotto E. Why and how do women recover from bulimia nervosa? The subjective appraisals of forty women recovered for a year or more. Int. J. Eating Disorders 1993; 14: 249–260.
21) Otani M, Matsui H, Kobayashi I, Kawamoto H, Nomura J. On the insight into eating disorders; mainly in relation to their treatment. Jap. J. Clin. Psychiatry 1994; 23: 955–961 (in Japanese).