preplanned fasting in the treatment of mental disease:
survey of current soviet literature*

Diethelm H. Boehme

Since 1946 the treatment of certain mental diseases by preplanned fasting has gained widespread, although not always enthusiastic, attention in the Soviet Union. Based on the use of strict fasting to treat a great variety of somatic diseases, Nikolajew (1969a) applied this concept for the first time to the treatment of idiopathic mental disease and posttraumatic mental symptomatology. More recently, measures were taken to limit this therapeutic method to the institutionalized patient, and the results obtained using this treatment were published in a comprehensive volume (Fedotow 1969). In the present article, a brief survey of this and related publications will be given together with a description of the plan of treatment.

Planned Fasting in Psychiatric Practice

This form of therapy was first introduced in 1949 on a purely empirical basis, and it was soon found that patients who had insight into their disease and an active desire for improvement benefited most from it (Nikolajew 1969b). In 1969 the total patient population seen by Nikolajew numbered more than 1,500, one-half of whom were schizophrenics with three-fourths of these suffering from the so-called hypochondriacal and simple forms of the disease.

Hypochondriacal Forms

In the hypochondriacal subgroup, significant improvement was observed in 70 to 80 percent of those cases where the affliction had not lasted more than 2 years. Where the disease had taken its course for more than 5 years a reduced improvement probability of 50 to 60 percent was found.

In certain instances complications and actual worsening were noticed, particularly where physical or psychological trauma preceded the outbreak of the disease, leading to rapid progression and destruction of the personality.

Significant improvement was noted in 80 to 90 percent of fresh cases where the disease had lasted not more than 1 year.

The Soviet literature defines as hypochondriacal those forms with a progressive course and increasing personality change (including autism, loss of confidence, passivity, loss of emotional reactivity, and destruction of the thought process) similar to advanced hebephrenic schizophrenia. Hebephrenic forms differ, however, through the absence of the hypochondriacal fixation on the disease as such and an ill-defined course with a slowly developing change of personality in the direction of apathy and aboulia.

Paranoid Forms

This subgroup corresponds to the definition used in American psychiatric practice. Only 100 such patients were observed. Improvements were far less frequent in this group and were actually recorded in only 60 percent of all cases where the disease had lasted less than 2 years. Where the duration had been more than 5 years, improvement was seen in only 40 percent. Exacerbation of paranoid symptoms was observed during the first 2 weeks of the fasting period and occasionally during the first 10 days of the refeeding period.

*This report was prepared during the author's detail to the Institute of Psychiatry, Academy of Medical Sciences, Moscow, U.S.S.R., in 1974.

Reprint requests should be addressed to the author at V.A. Hospital, East Orange, N.J. 07019.
Catatonic Forms

In this group only 10 patients were observed. Here, the greatest resistance to therapy was noticed inasmuch as catatonic stupor generally prevented patients from developing any insight into their disease and made it impossible for them to cooperate with the physician. Total abstinence from food led to significant improvements within 10 days after beginning of treatment in three patients. Experience with the remaining seven was unsatisfactory and led to discontinuation of this form of treatment.

Cyclic Forms (Schizoaffective or Cyclic-Affective Forms)

This constituted the smallest group of patients, eight of whom had suffered from their disease between 5 and 10 years. Four of the eight patients experienced total disappearance of their symptoms during preplanned fasting. Their symptomatology consisted of moderate depression with a background of slight emotional defect.

In general it was found that the results in those patients who had experienced significant improvements were quite impressive—after treatment, a majority of such patients were capable of attending institutions of higher learning, working in their specialty, and even of acquiring academic degrees. In 30 percent recurrence was observed within 2 years of treatment; this recurrence, however, responded to a new course of therapy. In the opinion of Nikolajew (1969a), treatment should not be repeated earlier than 6 months after termination of the first course.

Diseases Other Than Schizophrenia

Planned fasting was applied in functional psychosis, manic-depressive states, involutional psychosis, epilepsy, posttraumatic encephalopathy, encephalitis, certain endocrine disorders, and hypertension. Best results were seen in patients suffering from idiopathic hypertension, but benefits were less pronounced in the other disease complexes.

It is concluded that chances for a successful treatment depended not so much on the objective diagnosis but on the cooperation of the patient and the rate of progression of the disease.

Contraindications to Planned Fasting Therapy

Planned fasting therapy was contraindicated if any of the following states or conditions existed:

1. Disease of more than 3 years’ duration: Occasional good results have, however, been noted in patients with disease of more than 20 years’ duration.
2. Advanced age of patient: Depending upon the patient’s state of health, age must be considered.
3. Paranoid/hallucinating syndromes (i.e., when severe derealization symptoms, in which the patient is unable to establish contact, and catatonic states are present).
4. Mental retardation.
5. Schizophrenic states in which the patient is inclined toward conflict.
7. Marasmus (particularly in adolescence), tuberculosis, malignant tumors, leukemia, cirrhosis of the liver, hyperthyroidism, acidosis, Addison’s disease, and lactation.

Method of Treatment

Response to treatment develops in four stages:

1. Total withholding of food (up to 4 days): During this period the patient is irritated by all references to food—for example, seeing or smelling food, conversations about food, and sound of table implements. Perception of food-related stimuli elicits flow of saliva and abdominal pain. Slowing of tendon reflexes may be observed. Patients sleep poorly, are irritable, and may show exacerbation of their symptoms. Body weight drops rapidly (approximately 1 kg per 24 hours), little fluid is taken, blood pressure remains stable but pulse appears slightly accelerated and may show irregularity.

2. Acidotic state: Between the third and the fifth day of total withholding of food, hunger pains diminish and may entirely disappear. Seeing or smelling food ceases to interest the patient, and he begins to slow down. Occasionally, patients complain about headaches, vertigo, nausea, and weakness. The tongue may be coated and dry, and tendon reflexes may decrease in activity. Some reflexes may be impossible to elicit. The blood sugar may drop to levels as low as 65 percent mg and a drop of CO₂ combining power is often observed. After 12 to 14 days, this stage begins to merge into the third stage.
3. State of compensation and equilibration: During the course of 1 day or, occasionally, even of a few hours, a decisive change in the state of the patient occurs, designated as acidotic crisis. The patient experiences substantial improvement of his subjective feeling, weakness disappears, he feels strong and motivated, and his mood improves. CO$_2$ combining power rises, and so does the blood sugar. The daily weight loss stabilizes at 100 to 200 gm/day. The tongue loses its coating. Patients in the catatonic state experience a decrease of tension, and negative feelings begin to disappear. At this moment refeeding of the patient begins.

4. Period of restitution (the restitution diet is described below in detail): Restitution begins with the feeding of 200 ml fruit juice. The patient first experiences extreme satiety but usually, after half an hour, is hungry again and subsequently develops a feeling of weakness and wants to go to bed. His mood begins to change. He is labile. He makes unusual demands. His mental symptomatology may flare up for short periods of time. He complains about gas in the abdomen, peristalsis becomes vigorous and can be felt through the abdominal wall. At this state 1 to 1.5 liters of juice per day must be given. Independent bowel movements begin on the second to third day of refeeding. On the second or third day an enema must be administered. The pulse rate begins to rise and its rhythm may become irregular; a small rise of body temperature may also be observed. The body weight may still slightly decrease.

5. State of intensive restitution: This stage begins on the fourth or sixth day. Appetite becomes good, and it is now possible to satisfy the patient’s demand for food with bigger meals consisting of fruit, bread, and—after the seventh day—meat. In the majority of patients, the original body weight is reached during the same length of time during which the patient fasted. Rarely, recovery of pretreatment body weight proceeds at a faster scale. Physical strength increases, self-reliance is being felt, and the patient’s mood may increase to a state of euphoria. The patients may overestimate their strength due to a desire to resume work. Any pathological trends or hallucinations disappear entirely. Arterial pressure returns to normal, blood sugar rises to 100 percent/mg or higher. This state of positive mood and voracious appetite continues for 2 to 3 weeks and then goes over into a state of normality. In this patient shows moderate appetite and does not any longer fully concentrate upon the ingestion of food. The patient may develop a critical attitude toward his previous disease. This response to treatment may essentially take one of three forms:

a. He may display active response. The above-described states are clearly expressed and occur at the expected time.

b. He may live through the above-defined states but with some delay. Stages may be weakly expressed. These patients show a less pronounced effect, and improvement may be only transient.

c. He may not exhibit any of the defined stages. In these cases, usually a therapeutic effect is not seen.

Procedure for the Initiation of Therapy

1. An informed consent should be obtained from the patient or his relatives.

2. The necessary laboratory examinations must be completed.

3. Only then should the patient stop ingesting food. Where possible, the anticipated time interval of total fasting should be discussed with the patient beforehand so that he may develop a positive attitude toward his treatment and have a feeling of voluntary consent. The total length of treatment has to be determined on an individual basis depending upon age, physical appearance, and type of disease. In the overwhelming number of diseases, a time period of 20 to 30 days of total withholding of food is suggested; only in exceptional cases should it be extended to 40 days. The patient should be informed that he may lose 15 to 20 percent of his starting body weight.

4. Smoking must be prohibited.

5. The amount of fluid intake should be not less than 1,500 ml. This may be fresh or boiled water, mineral water, or tea.

6. Before institution of total withdrawal of food, the patient should be induced to move his bowels. If necessary, he should be given magnesium sulphate by mouth.

7. During the period of total food withdrawal a strict daily regimen must be observed:

a. An enema must be given each morning using 1 to 1.5 liters of water.

b. The patient must receive a 15-minute bath in water at body temperature.

c. A total body massage must be given in order to increase skin blood flow. This may be performed with
soap which then can be washed off in a tub or in a shower.

d. The patient should receive his morning tea and then be allowed to rest for half an hour in bed.

e. This should be followed by a daily walk. During cold weather, special care must be taken that the patient is warmly dressed. During the walk, which can be extended over several hours, the patient should perform breathing exercises.

f. After the walk the patient should not spend his time sleeping but occupy himself with games, reading, or work therapy.

g. In the evening the patient should again clean his teeth and gargle in order to remove the coating from his tongue. Patients should sleep in a well-ventilated room.

Restitution Diet

Restitution should begin with freshly prepared fruit juices although, if these cannot be obtained pasteurized, concentrated juices may be used. During the first day not more than 100 to 120 gm per feeding to a maximum of 1 liter a day should be given. The first few feedings may be diluted 1:1, volume for volume, with water. On the second day applesauce, oranges, and other fruit may be given along with the juices. On the third day, in addition to the above-mentioned fruits and juices, carrots (400-600 gm/day) and kefir (500-600 gm/day) may be consumed. From the fifth day on, dark bread may be given, 100 gm for each feeding. Starting on the seventh day, the patient may receive meat, together with potatoes, beets, or cabbage boiled without salt. To these may be added onions and vegetable oil. Starting on the eleventh day, milk products without salt and plum butter as well as nuts may be given. Details of this diet may be adapted to the needs of the patient. Fruit and vegetables should be given at a maximum. Great care has to be exercised in the use of salt. The milk and vegetable diet may be maintained for a period at least as long as the patient’s fasting period. Even after complete return to a normal diet the patient should always have a substantial amount of fruit and vegetables in his diet.

The principal complication of fasting treatment is a growing acidosis accompanied by nausea and vomiting. For relief it is recommended that the patient be given an alkaline mineral water in small doses by spoon. An enema may also be given and the patient should be allowed to breathe fresh air. If nausea continues for more than 3 days, treatment must be discontinued. In case of stomach cramps, the patient may be given small amounts of salt. During the period of acidosis, some patients may manifest chole- or nephrolithiasis and may pass concretions or gravel in their urine. They should be allowed ample rest, given alkaline mineral water to drink and a standard antipain medication. Premature discontinuation of fasting may rarely become necessary as in the case of cardiac irregularities, intractable vomiting, or surgical complications. On the whole, complications are more frequent during the restitution period and are usually observed if the patient exceeds his prescribed food intake. He may develop diarrhea and abdominal pain. As mentioned above, very rarely between the fifth and seventh day a return of psychiatric symptomatology may be observed. In this case, standard methods of treatment like insulin shock have to be applied. But even in cases where fasting has not been entirely successful it may be used, together with other standard therapeutic measures, and a satisfactory result still be obtained.

Fasting treatment should not be repeated for at least 6 months. In addition to the work of Nikolajew (1969b), extensive experience with planned fasting treatment has also been reported by other investigators. A group under Newskij, Kitjan, and Zukanowa (1969) described results obtained with a group of previously treated schizophrenics of long standing. It consisted of 25 patients up to 45 years of age with manic-depressive psychosis and cyclothymia. Planned fasting up to 29 days was applied and only five failures were observed. A second group of 93 schizophrenic patients, 20 of whom had been ill for more than 10 years, were observed. Significant improvement was shown by 32 percent as early as the stage of withholding of food, although one-half of these experienced transient worsening of their condition. An additional 45 percent showed significant improvement during the restitution period. Interestingly, these investigators also reported highly satisfactory results in involutional psychosis, hypertension, and cerebral sclerosis.

Particular attention has been devoted to the prognostic significance of a worsening or acceleration of psychotic symptoms during the process of planned fasting. One author (Semitschow 1969) states that exacerbation of symptoms during the period of fasting is to be considered a favorable sign, particularly in young patients, in women, and in patients with a brief
history of disorder, as well as in those suffering from a so-called simple form of schizophrenia. On the other hand, the likelihood of a favorable response decreases if this worsening of symptoms occurs only late in the course of treatment, in male patients of advanced age, in cases with a long history of disease, and in those forms of schizophrenia where hallucinations prevail, autism occurs, and absence of self-criticism and thought integration are noted.

A combination of planned fasting with psychotherapy was attempted by Babenkov and Gurwitsch (1969). These authors emphasize that psychotherapy in phase with the stages of planned fasting may enhance the results of treatment significantly. The therapeutic armamentarium consisted of hypnosis, autogenic training, and other accepted methods of psychotherapy.

Other authors have reported on their experiences with chronic and therapy-resistant cases of schizophrenia. Notable among these is Siletzkij (1969c), who reports that planned fasting therapy changes the patient response to such a degree that the entire disease picture undergoes profound alteration. Like Semitschow, he stresses that any worsening of the symptomatology during the period of fasting must be considered a prognostically positive sign. Furthermore, he advocates combining fasting with drug therapy.

Experiences with the treatment of hypochondriacal patients are summarized by Gurwitsch (1969). This investigator stresses the fact that planned fasting will give favorable results in depressed as well as schizophrenic patients, even where other therapy has proved ineffective. A favorable result was also seen by Kowalenko (1969a) who studied a similar group of 24 patients. Rubljow (1969) investigated epileptics in addition to schizophrenic patients and was impressed by a favorable response. She proposes to use planned fasting also in the treatment of chronic alcoholics.

Krajzerow (1969) undertook electroencephalographic studies during the duration of planned fasting in a group of 39 chronic schizophrenics. He sums up his experiences by recommending this form of treatment for the chronic schizophrenic, although other authors were less successful with this type of patient (Nikolajew 1969a). He gives a detailed description of electroencephalographic changes appearing when fasting is being broken and the patient begins to be refed.

Zazak (1969) reported his experience with 19 patients (12 suffering from manic-depression and 7 from cyclothymia) who ranged in age from 22 to 65 years. In this group, significant improvement, both physically and mentally, was seen as early as 5 to 7 days after the onset of therapy. He advises against rigidity in breaking the therapy if exacerbation of symptoms should occur.

Emeljanowa (1969) summarized extensive work carried out in the city hospital of Taganrog (a general hospital with a psychiatric ward) from 1962 to 1964. During this time, 52 patients (47 men and 5 women) were treated, 21 of whom were schizophrenics and 22 afflicted with a hypochondriacal syndrome. The remainder were idiopathic epileptics, chronic alcoholics, and patients with a posttraumatic epilepsy. After treatment, 12 of the 52 patients were symptom free, and 23 patients showed significant improvement. In a separate communication, Emeljanowa et al. (1969) stress the fact that planned fasting therapy can be used even in a general hospital as long as a separate psychiatric ward is available.

Minjailenko et al. (1969) reported satisfactory results in a group of patients suffering from schizophrenia complicated by bronchial asthma. Siletzkij (1969c) followed a group of schizophrenic patients during planned fasting of 6 to 40 days and subjected them to the Thorn Test. Eleven out of 47 patients reacted with eosinophilia after 4, 24, and 26 hours. In a number of these cases, however, a positive test had been observed before treatment began.

Arshawskij and Krajzerow (1969) studied changes in the electroencephalogram during planned fasting. They observed desynchronization and fast, steep rhythms over the frontal lobes, whereas synchronized paroxysmal discharges of steep, fast and slow waves were noted over the parietal lobes of both cerebral hemispheres. They speculate that this may be due to excitation of subcortical formations exercising ascending impulses upon the cortex. A favorable outcome may be expected, they emphasize, when desynchronization, together with fast rhythms over the parietal lobes, is found.

Kushnir and Shapiro (1969) examined several parameters of blood coagulation in patients undergoing planned fasting and failed to observe any significant changes in coagulation factors when a steady state was attained.

Physiological Factors

Siletzkij (1969b) noted that phagocytic activity in-
creases during the period of total abstinence from food and during the middle portion of the restitution period. However, marked increase of phagocytic activity may also be seen in connection with emotional tension. By contrast, the absolute number of eosinophiles decreased during planned fasting.

Importantly, changes in serum \( pH \) during fasting were reported by Skorik-Skworzowa and Kulatschkow (1969), who observed a significant shift of serum \( pH \) toward acidity together with a buildup of \( CO_2 \) reserve. They felt that compensatory mechanisms came into play during fasting, acting through an undefined feedback which kept the organism in hemostatic equilibrium. Urinary excretion of adrenaline and noradrenaline precursors during fasting was examined by Lando and Babenkov (1969). From their observations of 54 schizophrenic patients and 19 normal controls, they concluded that stimulation of the adrenal medulla is marked not only during the period of total fasting but also during the restitution period.

Gurwitsch (1969) followed the behavior of basal metabolism during treatment. His observations confirmed those reported by numerous other authors—a lowering of the RQ to 0.88 and 0.72 followed by a rise up to levels of 1.05 and 1.11.

Kowalenko (1969b) reported an increase of pulse amplitude and deepening of respiratory action during the period of reconstitution. A similar increase could also be found during the initial period of complete abstinence from food. Lurje (1969) observed that the level of postprandial leukocytosis during planned fasting may serve as an indicator of patient reactivity, although these changes must be considered nonspecific. Landoj et al. (1969), in a study of protein metabolism in mentally ill patients during preplanned fasting, found only insignificant deviation from normal protein breakdown. During hunger periods of up to 25 days, no significant alterations were noted.

Evsina (1969) examined uropepsin concentration in the urine of treated schizophrenic patients. Before treatment began, she noted elevated uropepsin levels, which continued at the same level after treatment was under way. There were daily variations, however, which related to physiological stimulation through the sight or smell of food. Refeeding resulted in a significant increase of the excretion of uropepsin. In the view of Evsina, an increase in excretion of uropepsin pointed toward a favorable therapeutic result.

Only one team of investigators, Poroshine and Koshanowa (1969), examined the serum lipoproteins during planned fasting. Regardless of initial diagnosis, they found in the mentally ill a drop of the alpha lipoprotein fraction and an increase of the beta proteins. During refeeding, normalization of alpha and beta protein levels was seen. In fact, some relationships between maintenance of alpha and beta-alpha protein ratio and the severity of mental disease state were noted. It is emphasized that changes in lipoprotein levels during hunger have no deleterious effect upon the patient.

More recently Rossichin (1972) published a study on 143 schizophrenic patients (100 males, 43 females) with a slowly progressive course. Of these, 32 patients were in the adolescent age group. In 90 of these a favorable result was noted as measured by Taylor's Stress Scale. Similar results were reported by Pusijenko (1972) in 75 patients, 42 of whom suffered from schizophrenia while 33 were diagnosed as neurotic.

Jurkin (1972) examined 42 patients with a depressive syndrome characterized by general apathy and deep-rooted depression. A second subgroup of his patients complained about phobias while a third group suffered from delusions of persecution. During the first period of planned dietary treatment, the overwhelming majority of patients showed a trend toward mood improvement, together with an increase of arterial pressure and pulse rate. Best results were seen in that part of the group whose disorders showed a recurrent, attack-like progression.

A recent summary of the planned fasting treatment method is given by Michailowitsch (1974), with particular emphasis on clinical aspects and theoretical background. This author also gives detailed instructions for the refeeding period. An equally detailed description of background and clinical application is provided by Brjusgin (1972) who related his experiences in the treatment of simple forms of schizophrenia. He stresses again the importance of the patient's capacity to respond. At variance with other authors, he claims satisfactory results in patients who showed a slow, protracted response to treatment.

A special study was undertaken by Polischtschuk (1974) concerning the effectiveness of planned fasting in patients with a slowly progressive form of schizophrenia. He found that the therapeutic efficacy of this treatment had a clearly phasic character and was due mainly to a stimulating rather than an antidepressive
or sedative effect.

A detailed description of the various phases, including the refeeding phase, is given by the first describer, Nikolajew (1973), in a recent publication written especially for physicians intent upon treating patients by this method.

In this connection, a recent study by Rudakow (1972) describing the results of planned fasting in patients suffering simultaneously from hypertension and schizophrenia is of interest. He stresses the beneficial influence of preplanned fasting upon elevated blood pressure, as shown by a detailed study of arterial and capillary pressure, as well as the favorable effect of this regimen upon the schizophrenic symptoms.

References


Brjusgin, V.A. Planned fasting therapy in patients with simple schizophrenia. Dissertation for Candidate of Medical Sciences, Voronesh 1972 (Ministry of Health RSFSR-Moscow Scientific Research Institute for Psychiatry and Voronesh Regional Hospital “Orlovolka”).


Lando, L.I., and Babenkow, G.I. Dynamics of urinary


Rudakow, JaJa. Planned fasting therapy in hypertensive patients with mental defects and condition of the vascular system during the course of therapy. Dissertation for Candidate of Medical Sciences, Moscow 1972 (Moscow Scientific Research Institute for Psychiatry of the Ministry of Health RESFR).


recent books


The Author

Diethelm H. Boehme, M.D., is Chief, Laboratory Service, and Professor of Pathology, Veterans’ Administration Hospital, East Orange, N.J.