Sowińska-Przepiera Elżbieta, Patalong-Wójcik Martyna, Andrysiak-Mamos Elżbieta, Starzyński Dariusz, Przestalski Marek, Syrenicz Anhelli. Eating disorders - anorexia as an interdisciplinary problem. Journal of Education, Health and Sport. 2019;9(2):113-122. eISNN 2391-8306. DOI http://dx.doi.org/10.5281/zenodo.2559191
http://ojs.ukw.edu.pl/index.php/johs/article/view/6568
https://pbn.nauka.gov.pl/sedno-webapp/works/903225

The journal has had 7 points in Ministry of Science and Higher Education parametric evaluation. Part B item 1223 (26/01/2017).
1223 Journal of Education, Health and Sport eISSN 2391-8306 7

The authors declare that there is no conflict of interests regarding the publication of this paper.

Received: 25.01.2019. Revised: 30.01.2019. Accepted: 07.02.2019.

Eating disorders - anorexia as an interdisciplinary problem

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ABSTRCT

Eating disorders are a serious medical and social problems. The most commonly recognized eating disorders are anorexia nervosa (AN) and bulimia nervosa, now classified as a behavioral disorders.

Anorexia nervosa is a disease involving intentional body weight reduction, distorted body image and the dysmorphophobia, often with concomitant depression and social withdrawal. Understanding anorexia is not only limited to a food or a body weight. Underlying disorders include: emotional issues, undetermined identity, a negative self-image, etc.

AN has a reported prevalence in woman of 0,5-1%, and 0.05-0.1% in men. Prevalence rate among polish girls under 18 years old is 0.8% - 1.8% .

The etiology of this disorder is multifactorial and unclear. The predisposing factors include: genetic factors, personality disorders, specific family patterns (overprotection, avoiding conflicts) and high economic status.

Diagnosis of AN is a challenge. Symptomatology is variable, including: behavior changes, psychological and somatic symptoms, specific biochemical and hormonal abnormalities. A treatment is multidisciplinary and multi-stage, comprising: (1) the life saving therapy (prevention of dehydration, electrolyte imbalance and cachexia), (2) restoration of normal body weight, (3) adjuvant pharmacotherapy, (4) psychotherapy. The efficacy of treatment is unsatisfactory. Anorexia has the highest mortality rate of all mental disorders: after 15-20 years the mortality prevalence rate is 19-20%, mainly as a result of cardiovascular complications and suicides.

Key word: anorexia.

INTRODUCTION

Eating disorders, the significant medical and social problems, are classified as specific: anorexia and bulimia, and non-specific, eg.: bigorexia (obsession with muscularity) orthorexia nervosa (obsession with quality of food), bingeeating disorders (compulsive overeating), night eating syndrome (NES) or obesity. According to the ICD-10 classification, eating disorders (F50) include: anorexia nervosa (F50.0), atypical anorexia nervosa (F50.1), bulimia nervosa (F50.2), atypical bulimia nervosa (F50.3), overeating associated with other psychological disturbances (F50.4), vomiting associated with other psychological disturbances (F50.5), other eating disorders (F50.8) and unspecified eating disorders (F50.9) [1].

The most commonly recognized eating disorders are anorexia nervosa and bulimia nervosa.

The aim of this work was to summarise the relevant information concerning patients with eating disorders (anorexia type) and underlining the need for a multidisciplinary patient management.

Anorexia nervosa (AN) has existed as long as a man. It is subject to evolution and takes different forms depending on the historical context of the era in which we are considering the cause of the disorder [2, 3]. Behaviors associated with taking drastic diets and fasts are largely related to cultural factors, changes of social consciousness and changes in the perception of the body and human needs. Understanding the problem of anorexia is not only limited to a food or a weight, as it often seems to persons from the patient's environment. Food is a form of combat with numerous psychological problems that plague teenagers and people on the threshold of adulthood. The foundation of these disorders are: emotional problems, an undetermined identity, a negative self-image, paradox of family ties and hate, denial of sexual development, or sexual trauma in the childhood or adolescence. Besides, in the era of consumer society, an unrealistic pattern of femininity is often imposed on by media, what results in increasing number of healthy teenagers and young women using a variety of weight-loss diets and/or intense exercise. Promotion of slim, beauty endowed, independent and demanding female model often exceeds the individual tolerance limit. Genetic predispositions, environmental risk factors and the desire to achieve the purpose may result in eating disorders. After many years of discussion, eating disorders are now classified as a mental disorders and have been placed in the group of behavioral disorders with significant consequences for physical and mental health [4, 5]. Anorexia should be considered as a severe mental illness. This means in practice, that not every skinny person is suffering from anorexia, and not every anorexic is skinny. It is a mistake, to evaluate the mental state based only on the body weight.

DEFINITION

Anorexia nervosa is a severe psychiatric disease that involves intentional body weight reduction, distorted body image and the dysmorphophobia, often with concomitant depression and social withdrawal [2, 3].

EPIDEMIOLOGY

The world statistics show that an incidence of anorexia nervosa (AN) among women is 0.5-1% and 0.05-0.1% in men. Prevalence rate among polish girls under 18 years old is 0.8% - 1.8%. Considering the existence of atypical forms that do not meet all of the diagnostic criteria, the spatial frequency increases to 3.7%. Age of the most frequent occurrence is 13-14 years old and 17-18 years old. At the age of 25 the incidence of anorexia decreases, but it can occur at any age [6].

The highest incidence of anorexia is recorded in Europe, North America (USA, Canada), Japan and Caucasian community of South Africa. The mortality rate among people with anorexia is approx. 10%. The mortality rate, due to health complications or suicide, is the highest among patients with mental disorders. The estimated rate of suicides in anorexics is 2-5% . Other studies suggest that mortality rate is up to 18% [1, 6].

ETHIOPATHOGENESIS

The number of eating disorders has rapidly grown in recent years. Among them, the most known and most frequently studied disease is anorexia. The etiology of the disease is still unclear, but in previous studies a multifactorial pathogenesis was suggested [7]. Factors that may predispose to anorexia are presented in Table I.

Table I. Eating disorders predictive factors and events [8, 9, 10].

Predictive factors	
Individual factors	– Genetic factors (a higher incidence of anorexia in monozygotic twins compared to dizygotic twins was shown in many studies) – endocrine disorders – metabolism of neurotransmitters (eg. serotonin, noradrenaline, endogenous opioids)
Personality traits/ disorders	– Obsessive-compulsive personality (perfectionism in different aspects of life, overestimating the size of body) – Histrionic personality* – Schizoid or schizotypal (tendency to bizarre behavior, including behaviors related to food) – High levels of anxiety, low self-esteem
Family factors (specific family relationships patterns, especially in stressful situations)	– Ensnares: the boundaries between different members of the family are blurred; problems of one family member are the problems of other people. – Overprotection: the family is closed in it's own circle. The child develops an attitude of helplessness. Parents are extremely protective, what contributes to creation of additional stress and problems. Family cares about each other only by the sense of duty, but there is no family closeness. – Stiffness: inability to cope with new situations, such as: puberty, the death of a loved one, illness in the family. – Avoiding conflicts: the overriding goal of preserving a family harmony, all attempts to solve problems are considered to be a threat to family. – Involving children in the marital problems, children become allies of one of the parents in the "fight" between them. Problems are not solved directly. The child feels responsible for what is happening in the family. – The exaggerated family expectations, considering the appearance as a matter of great importance.
Socio-economic factors	– Economic status (higher incidence of anorexia in children from families with middle and higher economic status) – The promotion of attractiveness by the media and the idea that being slim provides happiness and success. – Certain profession: model, actress, dancer, gymnast

*Histrionic personality- personality disorder with a pervasive pattern of excessive expression, emotional and theatrical behavior, provocative sexuality and efforts to draw attention.

CLINICAL SYMPTOMS

The onset of disease is difficult to diagnose because the first symptoms are unspecific and usually do not arouse suspicion. In adolescence, teens strive to perfect look of the body, trying to keep up to the standards promoted by the media. Careful observation of behavior and clinical signs might bring suspicion of anorexia, biochemical signs of the disease are present in the advanced form [1, 4, 5, 11].

I. Behaviors indicating anorexia

- The use of very strict, weight loss diets, frequent fasts
- The food related rituals: counting bites, splitting food into very small portions, cooking for others as a common refusal to eat a meal (you ate earlier, during preparation)
- Hiding not eaten meals, leaving the dishes as if the whole meal has been eaten
- Reporting fear of gaining weight, despite the low body weight
- Avoiding public consumption (Sunday dinner, visiting restaurant)
- Long, exhausting physical exercising (running, aerobics)
- Wearing bulky clothes to hide being skinny
- Usage of laxatives, diuretics or diet pills
- Excessive caloric interest during composition of products (checking the labels)
- Frequent weighing, checking silhouette in the mirror
- Repeated complaints about abdominal discomfort during meals (vomiting, diarrhea)
- Claiming that eating meal at home would be harmful, because one has been already eaten during the day
- Visiting toilet or bathroom immediately after a meal

II. Somatic symptoms indicating anorexia

- Rapid weight loss
- Symptoms of malnutrition
- Amenorrhoea, irregular menstruation
- Pale skin, often grayish tint
- Low body temperature, often accompanied by feeling cold
- Dizziness, fainting
- Dry, brittle hair
- Dehydration (mucosal dryness, easy collection of skin fold, which returns slowly to its normal appearance)
- Palpitations, arrhythmias (irregular heart beat), mainly caused by low potassium levels (hypokalemia) - hypokalemia is the most common cause of death in people suffering from anorexia
- Internal genital atrophy (problems with pregnancy, despite returning of normal menstrual cycles)
- Osteomalacia, osteoporosis
- The most serious somatic complication is death

III. Biochemical abnormalities:

- abnormal liver function tests
- elevated plasma urea (dehydration)
- elevated cortisol level
- elevated growth hormone level

- decreased levels of triiodothyronine (T3)
- reduced levels of FSH, LH
- hypercholesterolaemia
- hypoglycemia
- increased concentration of carotene (yellow skin)
- normocytic anemia
- leucopenia

IV. Psychiatric symptoms:

- Impaired concentration,
- Negative thinking: remorse, blaming oneself for the disease
- Sudden mood changes
- Perfectionism
- Uncertainty of abilities
- Sense of low self-esteem, usually dependent on eaten meals and appearance
- Tendency to isolation

IV. Negative thinking in anorexia, justifying further weight loss

- I'm still too fat...
- I'm terrible....
- I deserved everything that happens to me ...
- It is all my fault...
- I deserve to die....

DIAGNOSTIC CRITERIA

Criteria for diagnosis comprises the next edition of the classification of mental disorders DSM - 5 (Diagnostic and Statistical Manual of Mental Disorders) - American Psychiatric Association, (published 18th May 2013 year) and developed by the WHO International Statistical Classification of Diseases and Related Health Problems ICD-10, that are applied in Poland since 1996.

DIFFERENTIAL DIAGNOSIS

Before diagnosis of AN, other conditions related to weight loss must be excluded. This is particularly true in cases of chronic persistent abnormal laboratory results, that may indicate the presence of organic disease. Anorexia may also coexist with neoplasms, gastrointestinal diseases or tuberculosis. Each case of weight loss should be considered of these diseases or mental illness. Proper physical examination is crucial for the differentiation of AN. Examination should be conducted in both - patient and his parents, in search of a intended reduction of eating and excessive physical activity resulting a significant weight reduction.

TREATMENT

The efficacy of the treatment of anorexia is unsatisfactory, often by delayed diagnosis. Belittling the symptoms, by both family and physicians, may lead to state of a chronic diseases, what significantly complicates the treatment. So far, a number of multidisciplinary treatment models (general practitioners, dieticians, endocrinologists, psychiatrists and psychotherapists) have been developed and brought a better understanding of this serious disease. However, in professionals, treating patients with eating disorder often results in sense of powerlessness, fatigue and reluctance to them. The management of anorexia can not be focused on the persuading to eat, but on understanding the psycho-emotional problem. A multistage treatment model is used [3, 7, 8, 9]:

I. **Life-saving therapy.**

In case of weight loss below 75% of the predicted value, patients require hospitalization to protect the body from starvation and restore the basic biological and psychological functions:

1. Preventing dehydration, electrolyte disturbances and hypoglycemia (intravenous)
2. Prevention of cachexia (intravenous infusion, oral preparations, dietary intervention)

Decreased level of phosphate in serum is a poor prognosis which indicates exhaustation of energy resources and degradation of the skeletal muscles.

II. **Restoration of normal body weight.**

In the first stage of treatment, a major risk may be elicited by a rapid increase in volume of intra- with extracellular water and blood. Such condition may cause a myocardial overload. A gradual weight gain of 1 kg per week (by introducing at first semi-liquid diet of 30-40 kcal/kg., then 40-60 kcal/kg. and 70-100 kcal/kg) is considered safe. Complications of realimentation period also includes: inflammation, ulcers, obstruction of the gastrointestinal tract, in extreme cases rupture of the esophagus when provoked vomiting (Boerhaave syndrome) and pancreatitis.

III. **Adjuvant pharmacotherapy.**

1. Medications improving appetite are ineffective in anorexia.

2. In case of psychopathology, the proper psychopharmacological treatment is used. Despite the evidence reporting a dysfunction of serotonergic system in patients with anorexia, it was proven that selective serotonin reuptake inhibitors (SSRI) are

ineffective in patients with deficiency of body weight without depressive symptoms. SSRI can be beneficial in preventing relapse in patients who have reached the optimal weight. Small doses of haloperidol was confirmed to be efficacious in patients with severe AN. Moreover, the use of second-generation antipsychotics, for example: olanzapine, causes weight gain and improves mood.

3. In the case of abnormalities in densitometry, calcium (1200 mg /d.) and vitamin D3 supplementation should be provided.
4. Only if menstrual bleeding does not occur after 3 months from the body mass normalization hormonal medications can be used. Earlier administration is not needed, because more than half of the cases restore menstrual cycle after body weight normalization. The use of estrogen therapy prevents the aggravation of osteoporosis, although there is lack of clear evidence of its efficacy. Combined estro-progesterone drugs may be used, as in hypothalamic amenorrhea.

IV. Psychotherapy: prevention of late complications of anorexia.

The aim of therapeutic work is to perpetuate motivation for treatment, proper education on nutrition and correction of behaviors associated with eating. In later stages of anorexia management, psychotherapy becomes crucial for treatment. An appropriate attitude of medical staff (flexible, but firm) and 'therapeutic contract' with an explanation of clear rules of behavior are necessary from the beginning of contact. Both patient and family have to enter psychoeducation and psychotherapy at the beginning of treatment, in parallel with the control of body weight management. Currently group and individual cognitive-behavioral therapy is used to: change the fixed stereotypes of nutrition and low self-esteem, reinforce individualization-separation process, implement aspirations and develop ways of dealing with aggression. A family support therapy improves communication, relationships and increase flexibility for patient autonomy.

SUMMARY

The course of eating disorders is very diverse. After 4 years of initiation of treatment of anorexia nervosa, approx. 44% of patients do not show symptoms of the disease, in 24% of patients symptoms are still present, 28% partial remission is observed, whereas approx. 5% of patients die. After 15-20 years of disease, the percentage of mortality rises to the level of 19-20%. Therefore, anorexia is a mental disorder, with the highest mortality rate. In the case of children and adolescents relief of symptoms occurs in half of the patients. It depends on relatively quick intervention, the availability of treatment, supporting environment and

patients motivation for treatment. The two main causes of death in anorexia are cardiovascular complications and suicides.

Severe anorexia leads to a life threatening condition, which combined with patient resistance to therapy obligate to conduct compulsory treatment. However, Polish legislation still lacks clear legal basis for the treatment of anorexic patients without consent. It makes impossible to provide optimal therapists help to patients with severe stage of the disease. Moreover, there are no appropriate institutions guaranteeing comprehensive and multidisciplinary management. Patients who refuse treatment, with a significant physical destruction, can not be admitted to a psychiatric hospital, which does not provide a care of internal diseases physician. The hospitalization of adults in the internal department requires their consent to treatment.

The course of disease may be a single flare or chronic, with periods of remission and relapse. Various factors decides about the severity of AN. Factors that are favorable to the effectiveness of treatment include: lack of conflict between the child and parents, the short duration of disorder before adequate therapy, short-term hospitalization, no need to its repetition and also high social status.

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