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Night eating syndrome – characterization

Dominik Olejniczak[1], Joanna Skonieczna[1], Wioleta Kitowska[2]

[1] Department of Public Health, Faculty of Health Science, Medical University of Warsaw, Warsaw, Poland

[2] National Institute of Public Health – National Institute of Hygiene, Departament of Epidemiology

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Abstract
The definition of the Polish National Food and Nutrition Institute indicates that proper human nutrition should completely satisfy the body's needs for energy as well as provide all nutrients needed for the development of life and preservation of health. This article is devoted to the relatively recently described issue, pertaining to eating disorders, that is night eating syndrome (NES). Nowadays, food has become a tool used for improving one's well-being, which has contributed to an increase in the frequency of eating disorders and lifestyle diseases such as obesity. Night eating syndrome is important in the pathogenesis of obesity and for this reason, in the near future, it may become an important problem in public health. Night eating syndrome can be a difficult disorder to diagnose. Identification may be hindered by the lack of a unified definition, lack of coherent diagnostic criteria or diagnostic method, and problems with classification, which contributes to difficulties in fully understanding the disorder.

Introduction

The definition of the Polish National Food and Nutrition Institute indicates that proper human nutrition should completely satisfy the body's needs for energy as well as provide all nutrients needed for the development of life and preservation of health. This means that proper nutrition is of fundamental importance in our lives. A diet lacking in some ingredients, poor absorption, or poor digestion of foods can lead to malnutrition, becoming underweight,

and nutrient deficiencies along with diseases associated with them. On the other hand, excessive or inadequate food portions are the cause of the emergence and development of lifestyle diseases, such as cardiovascular diseases, obesity, or diabetes.

Food fulfills various functions, from biological to cultural, however, we often consume food incorrectly and we do not provide the necessary amount of nutrients for proper functioning of the body. In some cases, this may result in eating disorders.

This article is devoted to the relatively recently described issue, pertaining to eating disorders, that is night eating syndrome (NES). Nowadays, food has become a tool used for improving one's well-being, which has contributed to an increase in the frequency of eating disorders and lifestyle diseases such as obesity. Night eating syndrome is important in the pathogenesis of obesity and for this reason, in the near future, it may become an important problem in public health.

Night eating syndrome - definition

Night eating syndrome was first described in 1955 in the publication „The night-eating syndrome: A pattern of food intake among certain obese patients" by Stunkard, Grace, and Wolff, who investigated patients suffering from obesity. Their definition described NES as daily delayed eating of meals, which was characterized by three symptoms: evening or night hyperphagia, insomnia, and morning anorexia. It was also found that these symptoms are exacerbated by stress and can probably be alleviated by removing the patient from the stressful environment. Currently, the disorder can be described as a delay in the circadian rhythm of eating with a simultaneous normal sleep rhythm [1, 2].

NES consists of uncontrolled, usually repetitive, binge eating during the night. It is associated with mood and sleep disorders and can cause the development of obesity. It can occur as an independent disease or concomitantly with others, such as obesity or depression [3].

Night eating syndrome is not listed in the ICD-10 classification as a separate disease. However, it was included in the classification of mental disorders of the American Psychiatric Association DSM-5 in the category of „Other specified feeding or eating disorder"[4, 5].

Diagnosis

Ever since night eating syndrome was first described, the initial definitions have changed, making it difficult to compare studies. In April 2008 during the first international symposium on NES, a team of experts proposed a set of six diagnostic criteria. The first of these describes a significantly increased food intake in the evening and/or during the night, manifesting in consuming at least 25% of total food intake after dinner and/or at least two episodes of nocturnal eating during the week. The authors, wanting to take into account individual and cultural differences, did not determine a set time frame for the evening meal [6, 7].

The second criterion - having awareness during episodes of nocturnal eating and the ability to remember them the next day - was needed due to the necessity of distinguishing NES from sleep-related eating disorders (SRED), where the patient's consciousness is usually dormant and they themselves sometimes consume inedible or unusual products (eg. cigarettes smeared with butter or animal food) [8, 9].

Additionally, for NES to be diagnosed, the clinical picture must meet at least three of five features. Firstly, there is no desire to eat in the morning and/or breakfast is omitted for four or more mornings. Although morning anorexia is widespread among people suffering from NES, anorexia is common and not specific to this syndrome. For this reason, it is not a requirement according to the case definition. Secondly, a strong need to eat between supper and sleep and/or at night, is present among some patients with NES. The third feature is

insomnia associated with the inability to fall asleep or maintain sleep, at least four nights a week. Fourth of all, is the belief that you have to consume food in order to sleep or to go back to sleep. The last feature, depressive and/or deteriorating mood in the evening, shows the coexistence of emotional disorders with night eating syndrome. A depressed mood is usually related to patients' feeling lack of control and helplessness and is also associated with feelings of guilt and shame [8, 9].

The last three criteria are mandatory and show an increase in discomfort. The disorder must be associated with significant distress and/or impaired functioning, symptoms must persist for at least three months, and symptoms are not secondary to substance abuse or addiction, medical disorders, anxiety, or other mental disorders [8, 9].

Clinical picture

Determinants contributing to night eating syndrome include genetic, neuroendocrine, emotional, and stress factors, however, it is difficult to clearly ascertain the etiology of NES. Research indicates that the most common risk factors are: long-term diets and dissatisfaction with one's own body image, stressors resulting from interpersonal relationships, boredom, anxiety, and depression [10].

Studies of 5-6 year-old children, whose mothers suffered from night eating syndrome, indicate the genetic basis of this disorder. Another study, however, showed a clearly higher risk of developing the disorder among first-degree relatives. Studies conducted by Rasmussen et al. on Swedish twins confirmed the correlation between the occurrence of NES and genetic factors, although conducive environmental conditions, such as inappropriate parenting attitudes, must also appear [8, 11].

NES is associated with several psychopathological features, including depression, low self-esteem, and functional impairment. The severity of NES is positively correlated with anxiety symptoms, cortisol levels, and stress. Regardless of BMI, NES is connected with a pathological approach to nutrition as well as mood and sleep disorders, anxiety disorders, and disorders related to the abuse of psychoactive substances [10].

People who suffer from night eating syndrome intake a significantly higher percentage of energy after an evening meal compared to a healthy population. In the case of association of NES with sleep disorders, studies have shown that night eating episodes occur most often during the so-called non-rapid eye movement (nREM) sleep and negatively affect sleep quality. Such people wake up at night more often; some of them are more likely to reach for a snack. Night meals are not very copious and the most popular products include bread, sandwiches, and sweets [2, 7, 11, 12, 13].

The first symptoms appear in young adults, they affect the population from late adolescence to people under 30 years of age. The syndrome's course seems to be long-lasting, with periods of remission and exacerbation that can accompany stressful life events [8, 9, 10, 14].

Clinical implications

The biggest risk of night eating syndrome is the occurrence of accompanying illnesses and their consequences. These include, among others, obesity, binge eating syndrome, bulimia nervosa, affective disorders, or sleep disorders. In addition, the syndrome can have a negative impact on weight reduction attempts and the treatment of diabetes. Although the impact on weight loss is dubious, since the majority of research refers to small study populations and accompanying co-morbidities, those who participate in weight-loss programs, who suffer from NES, lose weight at a slower rate [9, 10].

Night eating syndrome can significantly affect the treatment of diabetes because NES patients have a negative attitude towards the disease, i.e. they adhere to a prescribed diet,

exercise, and monitoring of glycaemia to a lesser extent. Depression was also more frequent among them, and they ate in response to stressful factors. In their study, Morse et al. revealed that in a group of 714 patients with both types of diabetes under the care of reference centers of the third degree, 9.7% confirmed the consumption of more than 25% of their daily caloric intake after 7 pm [9, 13].

Treatment

So far, only a small number of studies have been carried out in regards to effective treatments for night eating syndrome. Case studies and clinical trials suggest the benefits of a variety of treatment strategies, including pharmacotherapy, cognitive-behavioral therapy, and alternative therapies such as progressive muscle relaxation, phototherapy, and behavioral therapy. Pinto et al. in their publication indicate that due to the complexity of NES symptoms, frequent correlation with obesity, mood disorders, and other comorbidities, future research into treatment of patients with this syndrome should include pharmacological and non-pharmacological treatments combined with an interdisciplinary approach to this disorder [14, 15].

Conclusions

Based on the presented work, the following conclusions can be drawn:

- Night eating syndrome can be a difficult disorder to diagnose. Identification may be hindered by the lack of a unified definition, lack of coherent diagnostic criteria or diagnostic method, and problems with classification, which contributes to difficulties in fully understanding the disorder.
- Stress and anxiety disorders may be one of the causes of night eating syndrome, which suggests that patients with NES should also be assessed for these disorders and the possible use of adequate treatment methods, such as relaxation training or coping skills exercises should be taken into account.
- Night eating syndrome can be one of the causes of becoming overweight and obese, which justifies the need for further research into this health problem.
- Inclusion of night eating syndrome during diagnosis in patients with type 2 diabetes, insomnia, and other eating disorders or mental health problems should be taken into account.

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