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Editorial

Night Eating Syndrome: Etiology, Diagnosis and Treatment

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Night Eating Syndrome

Night Eating Syndrome (NES) was first described in 1955 in obese patients presenting distinctive syndromes such as nocturnal hyperphagia, insomnia, and morning anorexia [1]. The literature has been growing since then. With increasing report of the syndrome globally, the prevalence of NES is estimated around 1.5% in the general population and among different populations [2-6]. It is estimated that 5-44% of the patients with eating disorder and 3.8-12.4% of diabetic patients also suffer NES [7]. Additionally, NES is present in 6-14% of the patients seeking weight loss treatments and 8.9-42% of those scheduled for bariatric surgery [2]. In another report, 12% of the college students met the criteria for NES [8].

NES has reported more commonly in females than in males [9]. Despite the growing literature, clinicians are still not familiar with this disorder in terms of diagnostic criteria, comorbidities, and treatment options [7].

Diagnosis

Proper diagnostic criteria are crucial to identify NES and to provide optimal management. The main features of NES include evening hyperphagia, defined as ingesting at least 25% of total daily caloric intake after dinner and/or 2 or more nocturnal awakenings and ingestion per week [2,10]. There has been a lack of standardization in definition of NES until the diagnostic criteria was proposed in 2011 [7]. In 2013, NES was even included in the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5) under the category of eating disorders not otherwise specified. Awareness of the nocturnal ingestion and significant distress must be present [11]. Exclusion criteria include binge eating disorder or other mental disorders or other medical conditions that may better explain the disordered eating behaviors [7]. NES shares some characteristics with other psychiatric disorders especially eating disorders and sleep disorders [7]. And nocturnal ingestion is a behavior shared by populations suffering from NES and sleep-related eating disorder. So the level of awareness during nocturnal ingestion is the main feature that distinguishes NES from sleep-related eating disorder but the distinction between the two is still controversial [12]. Popular assessment tools include self-report questionnaires such as Night Eating Questionnaire (NEQ), Night Eating Syndrome Questionnaire (NESQ), Night Eating Diagnostic Questionnaire (NEDQ) and semi-structured diagnostic tools such as Night Eating Symptom Scale (NESS), Eating Disorder Examination (EDE), Night Eating Syndrome History and Inventory (NESHI) [7].

Etiology

The causes of NES are not fully understood but clinicians believe there are a few mechanisms behind this disorder pointing out the role for several hormones such as melatonin, serotonin, cortisol, and leptin [7,13]. Melatonin is secreted in the brain and it helps to regulate other hormones functioning in circadian rhythm [13]. People with NES tend to have lowered levels of melatonin and serotonin and researchers believe that the decrease in these hormones would lead to sleep disturbances and feeding rhythms [2,9]. Leptin is another hormone produced by adipose tissues which regulates body weight through its effects on appetite and metabolism. It suppresses appetite especially during sleep [13]. However NES patients are found to have a reduced leptin level which may contribute to nocturnal awakenings [2]. They also tend to have higher cortisol (the stress hormone) levels which may contribute to the onset of the disorder.

Risk Factors

The biological basis of NES is still not well understood despite the increasing number of studies. It is yet to conclude whether eating at night is the result or consequence of the altered circadian patterns [13]. However, clinicians should be more aware of the risk factors and the assessment tools to identify patients who may suffer from NES. Psychiatric symptoms may increase NES symptoms and therefore individuals who meet the criteria for major depressive disorder and reports abnormal eating behaviors should be evaluated for NES [7]. Clinicians should also pay attention to any patients who complain of insomnia and sleep disturbances because these symptoms precede NES [7]. Any health professionals who work with psychiatric patients are encouraged to utilize assessment tools as needed.

Treatment

Many treatments have emerged since the first NES reports, including both pharmacological and non-pharmacological options [2,7]. Pharmacological treatments that have been studied and commonly used include Selective Serotonin Reuptake Inhibitors (SSRIs), topiramte, and agomelatine. SSRIs increase postsynaptic serotonin content which was believed to help restore the circadian function. The SSRIs commonly prescribed are sertraline, escitalopram, paroxetine, and fluvoxamine and were found to have improved NES symptoms and resulted in weight loss [14-19]. Topiramte enhances GABA activity and is a glutamatergic antagonist which helps with the anxiety and mood disorders that NES patients experience. It is shown to reduce and even eliminate NES symptoms [20-22]. Agomelatine is a selective melatonin agonist which helps to normalize the sleep-wake cycle and is believed to reduce depression and anxiety [7]. The

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drug was showed to improve NES symptoms and resulted in weight loss [23].

Different non-pharmacological treatments have also been proposed which improved symptoms of NES as well as mood disturbances and sleep disorders. These include daily phototherapy [24,25] muscle relaxation therapy with or without education [26,27], and Cognitive Behavioral Therapy (CBT) as it is believed that NES is associated with some cognitive distortions such as believing that one is unable to sleep without eating beforehand, specific food cravings, anxiety and agitation [7]. Additionally, CBT does improve NES symptoms especially nocturnal ingestions [28].

Future Research

All the treatments mentioned above showed effectiveness in NES management. However randomized controlled trials are essential and a longer treatment period with at least 8 weeks of follow-up would be helpful since there are no guidelines on the duration of the therapeutic benefit of medications on NES [7]. More importantly, clinicians should individualize the NES treatment plans for different patients due to the complexity of diagnosis and other related symptoms [28].

Since its first report in 1955, literature on NES is still insufficient especially with treatment plans [2]. Further studies with larger sample sizes, longer treatment period, and combining different treatment options should be established [2,28]. More studies are also needed regarding the influence of NES in management of other chronic diseases such as diabetes [7].

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