

## Nocturnal eating syndrome: A case report with therapeutic response to dexfenfluramine

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A woman with nocturnal eating syndrome responsive to dexfenfluramine (DXF) is reported. Eating consisted of nightly ingestion of large amounts of high-calorie meals and often sloppy meal consumption or preparation. Amnesia for the episodes was total. Anorexigenic medications produced partial control of her daytime carbohydrate craving and no nocturnal eating change. DXF stopped her eating behavior completely. Nocturnal eating herein meets all 4 DSM-III-R diagnostic criteria for binge eating disorder. 5-HT role in neural process controlling sleep-wakefulness (SW) has been widely shown. A 5-HT agonist like DXF could determine changes in the SW processes producing the therapeutic outcome reported herein. However, a specific DXF effect on the behavioral control of carbohydrate ingestion can not be dismissed.

**UNITERMS:** Nocturnal eating syndrome, dexfenfluramine, serotonin, binge eating disorder.

Nocturnal eating behavior can be a rather disabling condition leading to weight gain and psychosocial disarrangement to the patient and the family. It may pose a challenge to the health care professional with not too infrequent deceitful therapeutic outcome. The night eating syndrome was originally described in 1955 (9) when 25 obese treatment-refractory patients were reported. Since then, nocturnal eating disorder has scarcely been mentioned in the literature and even less its therapeutics (8). The first comprehensive paper on this issue has recently been published (8). It describes and addresses treatment issues for 19 polysomnographic documented patients presenting the nocturnal eating syndrome often associated with other sleep disorders (8). Yet, the majority of the cases reported in the literature deal only with patients who have a daytime eating disorder with also a nocturnal eating behavior to some extent (7). The

authors report herein, a woman with a predominantly nocturnal eating behavior and daytime carbohydrate craving who presented a good therapeutical response to DXF.

### CASE REPORT

A 41-year-old woman was initially seen in 1993 with a history of obesity and nightly sleepwalking accompanied by a compulsive eating behavior for nearly 22 years. Nocturnal eating consisted of nightly consumption of large amounts of high-calorie ready-to-eat foods and often sloppy meal consumption and/or preparation. Episodes always occurred during the first third of the sleep period. Amnesia for the episodes was total except occasionally when it involved elaborate food preparation, then she would have dream-like recollections the following morning. Neither injuries nor next morning body discomfort were reported. Several episodes witnessed by her kins described her in a sleepwalking trance-like state. Other than that, her sleep was unremarkable. Her daytime eating behavior demonstrated a carbohydrate craving usually apparent 10 days before her menses for 20 years. She described herself as

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an anxious and emotional person but denied obsessive thoughts about her weight or body shape. Visits to different endocrinologists to lose weight produced prescriptions for amphetamine, fenproporex and mazindol with no results. The medications partially controlled her daytime carbohydrate craving, but her nocturnal eating went unabated. Personal history: No history of snoring, excessive daytime sleepiness, psychiatric illness, CNS medication or other substance abuse was recorded. She had untreated high blood pressure. Episodes of night terrors and nightmares as a child and scattered episodes of mindless nocturnal eating during adolescence were reported. Family history: Several relatives with diabetes mellitus and her sister and father displayed occasional mindless nocturnal eating. No psychiatric illness in the family. Physical exam: BMI= 38.5 Kg/m<sup>2</sup> BP= 170 x 100 mmHg. Hematology series: unremarkable. Blood chemistry: unremarkable except for a cholesterol level of 241mg %. A negative antithyroglobulin and a positive antimicrosomal fraction were recorded. A US was suggestive of thyroiditis. Normal T3, T4 and TSH levels were obtained. Follow-up: A 1,000 Kcalories/day diet and 15 mg of DXF bid were recommended and soon after on DXF, the nocturnal eating episodes ceased completely. Thirty days later she had lost some weight and her BP was 150 x 8 mmHg. No further nocturnal eating episodes were reported.

## DISCUSSION

Disordered eating is a daytime wakeful condition that can be associated with nocturnal eating. Predominantly night time eating is less common and it is usually associated with a specific sleep disorder (8). This paper reports a predominantly nocturnal eating behavior. A Nocturnal Eating/Drinking syndrome is listed in the newly revised International Classification of the Sleep Disorders (5). This condition which primarily affects infants and less commonly adults is separate from the syndrome described herein, being characterized by hungry awakenings with customary wakeful consciousness (5). A diagnosis of binge eating disorder is possible. The DSM-III-R (1) requires 4 criteria to satisfy binge eating disorder; (a) recurrent binge eating; (b) feelings of lack of control during bingeing; (c) absence of purging, dieting/ fasting or vigorous exercising to prevent weight gain; (d) at least 2 bingeing episodes weekly for at least 3 months. This case satisfies all criteria. The fulfilled DSM criteria, high BMI, a tendency for daytime overeating and female gender, reinforces the notion that nocturnal and diurnal eating disorders syndromes clearly have some overlapping features (4). The Kleine-Levin syndrome (KLS) (3) share a few

features in common with the case reported herein. Typically, KLS is a auto-limited cyclic disorder of male adolescents with repeated sloppy binge-eating, hyper-somnolence, behavioral changes (5). A few cases extending beyond 20 years of age have been reported (3).

## TREATMENT

The therapeutic response to DXF for nocturnal eating syndrome has not been reported before. DXF is a nonspecific serotonin (5-HT) agonist prescribed for obese patients to control carbohydrate ingestion promoting weight reduction. DXF acts enhancing 5-HT release and inhibiting 5-HT reuptake. Involvement of 5-HT in sleep-wakefulness has been widely demonstrated. Several studies support the notion that 5-HT is involved in the regulation of slow wave sleep (SWS) (2). Serotonin antagonists (5-HT<sub>2</sub>) notoriously increase SWS in animals whereas agonists decrease it (6). However, both non specific 5-HT agonists and antagonists are reported to decrease sleep which further complicates its role in the sleep process. Thus, Jouvet et al. (6) proposed that rather than to act as a hypnogenic neurotransmitter, 5-HT might act as a neuromodulator by controlling the synthesis and/or the release of endogenous brain sleep factors (6) The ubiquitousness of 5-HT in neuronal system suggests that any interference with it will not only affect sleep mechanisms but may also have clinical consequences (2). A 5-HT agonist like DXF could disrupt the processes determining a decrease of SWS activity and the somnambulism-like nocturnal eating behavior reported in the present case. However, a specific action of DXF on the appetite control mechanisms can not be ruled out at this time.

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## RESUMO

Uma mulher com pulsão alimentar noturna e com resposta à dexfenfluramina (DXF) é relatada. Episódios compulsivos automáticos todas as noites com ingestão de glicídios, comidas semi-preparadas e presença de amnésia total dos episódios. Medicamentos anorexígenos reduziam a pulsão alimentar diurna sem modificar o padrão alimentar noturno. DXF 30mg/dia aboliu totalmente os episódios. A paciente preenche todos os critérios diagnósticos do DSM-III-R para distúrbio alimentar compulsivo. 5-HT participa dos processos neurais que regulam o sono sincronizado. O perfil agonista 5-HT da DXF pode determinar modificações destes processos neurais gerando o efeito terapêutico documentado neste caso. Contudo, um efeito específico da DXF no controle comportamental de ingestão de glicídios não pode ser descartado neste caso.