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## CASE REPORT

# When a patient with depression is feeling sleepy, be aware of sleep apnoea

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**SUMMARY**

A 67-year-old man was referred to an outpatient clinic of geriatric psychiatry because of persistent symptoms of depression and anxiety, accompanied by sleepiness. The latter had been evaluated multiple times in the general practice over several years; each time it was considered to be a symptom of depression. After referral, the patient was diagnosed with severe obstructive sleep apnoea (OSA), comorbid to a depressive and anxiety disorder. Retrospectively, we conclude that affective symptoms accompanying OSA and sleepiness were wrongfully interpreted as depression, but after having led to problems at work, they have triggered psychiatric comorbidity. Treatment of OSA in addition to the psychiatric disorders resulted in a full recovery over time. The delayed diagnosis of OSA has certainly diminished the patient's quality of life and might have precipitated the depressive disorder. Moreover, OSA poses patients at an increased risk of cardiovascular disease, hypertension, stroke and traffic accidents.

**BACKGROUND**

Obstructive sleep apnoea (OSA) is the most common sleep disorder worldwide, affecting 2%–6% of the adult population, increasing up to 15%–26% in those aged 70–100 years old.<sup>1</sup> OSA is characterised by repetitive complete (apnoea) and partial (hypopnoea) obstruction of the upper airway during sleep, which decreases arterial oxygen saturation.<sup>2</sup> Daytime functioning may be impaired due to loss of energy, depressed mood, irritability and concentration difficulties, which are core symptoms of affective disorders. Therefore, the diagnosis of OSA may easily be missed in patients with depression. Moreover, sleepiness itself is one of the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5) criteria of depressive disorder and also overlaps with the criterion of fatigue or loss of energy.<sup>1</sup> These diagnostic complexities may delay proper diagnosis of OSA in patients with depression. The aim of this case report is to increase awareness of the possibility of OSA in patients with depression.

**CASE PRESENTATION**

A 67-year-old man was referred to our outpatient clinic of geriatric psychiatry because of persistent affective symptoms for years. The onset of symptoms coincided with an unpleasant work situation that, after a year of sick leave, had led to demotion at 49 years of age. From that moment on, he

suffered from depressed mood, anhedonia, loss of initiative, increased appetite, worrying, catastrophising, feelings of anxiety with excessive sweating, difficulties staying asleep, nightmares, increased need of sleep, loss of energy and tiredness. Symptoms fluctuated over the years but increased during autumn/winter, after life events and during vacation periods. Over the years, he had gradually withdrawn from social activities.

His general practitioner (GP) had prescribed benzodiazepine hypnotics, but without any improvement of symptoms. Six weeks prior to his referral, he was started on citalopram 20 mg one time a day, a first-line serotonergic antidepressant. He had lost 7 kg bodyweight due to nausea. This weight loss increased his physical fitness, which made him feel slightly better.

His medical history did not reveal other mental or physical symptoms.

The patient was monitored, but not treated, for mild hypertension by his GP. He had no other previous medical or psychiatric history. His family history revealed no psychiatric problems or neurodegenerative diseases like M. Parkinson, M. Alzheimer or M. Huntington. The patient did not smoke or drink alcohol. Besides citalopram, the patient used simvastatin 40 mg one time a day.

Heteroanamnestic information of his wife and son revealed a change in character since the onset of his symptoms; he became more emotional and insecure about himself. Since his retirement, he tended to lose his temper over seemingly insignificant events. His wife explained that they slept apart for years because of his snoring. She nevertheless confirmed that his breathing paused regularly during sleep. Although they consulted their GP several times for his conspicuous sleepiness, they accepted the explanation that it was an inevitable part of his depression.

At psychiatric examination, we saw a tired man with bags under his eyes and reduced facial expression. Higher cognitive functions were intact. He had a depressed mood and flat affect, but denied suicidal ideation. Evaluation of his sleep pattern revealed a rapid sleep onset, but strikingly, he never woke up well rested, regularly dozed off during the day and he was often at risk of falling asleep while driving his car.

A full physical and neurological examination was remarkable only for an overweight body mass index (28.9 kg/m<sup>2</sup>) and hypertension (130/100 mm Hg). Routine blood chemistry did not reveal any abnormalities.



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## INVESTIGATIONS

In his next visits to our clinic, the patient repeatedly brought forward his work situation as being a traumatic event. This made him anxious in situations where he did not feel in control, like during his children's holiday. He did not meet DSM-5 criteria of post-traumatic stress disorder, but he met the criteria for a depressive disorder, partly seasonal, with a superimposed generalised anxiety disorder.

The patient scored 38 points on the 30-item Inventory of Depressive Symptomatology (IDS), which is indicative of a severe depression. The scores on the Mini-Mental State Exam (MMSE) and the Cambridge Examination for Mental Disorders of the Elderly/Cambridge Cognition test (CAMDEX/CAMCOG) were not indicative of cognitive problems (MMSE: 30/30, CAMDEX/CAMCOG 90/120). Based on his wife's information, he was additionally referred to a sleep clinic at our hospital. The score on the Epworth Sleepiness Scale was 16/24, which is indicative of excessive daytime sleepiness. Polysomnography showed 356 apnoeas in 6 hours of sleep and an Apnoea-Hypopnoea Index (AHI) of 57. The arterial oxygen saturation varied between 76% and 95%. The sleep architecture was distorted, as no slow wave sleep was present. No significant periodic leg movements or other unusual movements were observed. The patient was diagnosed with severe OSA.

## DIFFERENTIAL DIAGNOSIS

### Depressive disorder

Depressed mood, anhedonia, increased appetite, constant worrying, loss of initiative, withdrawal of social activities, sleeping problems, loss of energy, increasing symptoms during autumn/wintertime and lesser facial expression.

### Anxiety disorder

Feelings of anxiety with excessive sweating, catastrophising, nightmares, withdrawal of social situations and constant worrying.

### Post-traumatic stress disorder

As a result of the unpleasant work situation, social withdrawal, nightmares and feelings of anxiety with excessive sweating.

### Neurodegenerative disease

Change in character, mood disruptions and temper issues.

### Obstructive sleep apnoea

Severe loss of energy/tiredness, falling asleep while driving, dozing off during daytime, wake up not fully rested, snoring, breathing pauses during sleep, irritability, change of character, obesity and hypertension.

## TREATMENT

Citalopram, indicated for depressive as well as anxiety disorders, slightly improved his depressed mood and reduced anxiety symptoms over the course of 8 weeks. The patient accepted cognitive-behavioural therapy (CBT), to improve coping with his work situation and to increase his self-esteem. Four weeks after starting CBT, the patient started with continuous positive airway pressure (CPAP) at night to treat his OSA.

## OUTCOME AND FOLLOW-UP

Since starting citalopram, the patient experienced a small improvement of his affective symptoms. With CBT, his self-image

became more positive. Over the course of 3 months, prior to the start of CPAP, his affective symptoms further improved, without any effect on his sleep (related) problems and fatigue. After four nights of CPAP treatment, the patient felt more energetic and started rebuilding his life. Full recovery was achieved after 4 months of treatment. His IDS score decreased from 38 to 8 (no depression present).

## DISCUSSION

Although (hetero)anamnesic information may point to OSA, assessing the AHI by polysomnography is the gold standard for proper diagnosis. The AHI is the number of apnoeas or hypopnoeas recorded per hour of sleep. An AHI of 5–14 per hour indicates a mild, 15–30 a moderate and  $\geq 30$  a severe OSA. Hypopnoeas and apnoeas interrupt deep sleep and Rapid Eye Movement (REM) sleep and cause a fragmented sleeping pattern.<sup>2</sup> Patients wake up feeling unrefreshed and they stay tired during the day. Night-time symptoms include snoring, breathing pauses, a feeling of choking, excessive salivation, excessive sweating, gastro-oesophageal reflux, nocturia, waking up with a dry mouth and/or a headache.<sup>1 3</sup> During the day, the patient experiences excessive sleepiness, loss of energy, irritability,<sup>4</sup> withdrawal of social activities, difficulties with concentrating,<sup>5</sup> cognitive dysfunction,<sup>6 7</sup> loss of interest in daily activities,<sup>8</sup> temper issues,<sup>5</sup> psychomotor changes<sup>4-8</sup> and anxiousness and depressed mood.<sup>9</sup> These symptoms bear a striking resemblance to symptoms of depression.<sup>3 10 11</sup> Indeed, up to 63% of patients with OSA report depressive symptoms.<sup>9 11 12</sup> Most sleep clinics therefore regularly evaluate depressive symptoms of their patients with screening questionnaires.<sup>3</sup> The similarity in phenotypic expression of OSA and depressive disorders might be enough to misdiagnose sleep apnoea for a depressive disorder and wrongfully start antidepressant treatment.<sup>13 14</sup> In our case, the affective symptoms accompanying OSA have been wrongfully attributed to a depression by his GP and even temporarily treated with benzodiazepines. When his work problems due to OSA triggered a full-blown depressive disorder, he was referred for specialised mental healthcare.

Of particular interest for this case is that depressive disorders and sleep disorders co-occur more often than can be expected by chance.<sup>15 16</sup> This association is considered to be bidirectional as depression can evoke sleep disturbances and vice versa. Overall, 90% of patients with depression experience sleep disturbances. Also, sleep apnoea is found more often in patients primarily diagnosed with depressive disorders compared with the general population.<sup>3 4 17-22</sup> Because sleep disturbances are common in mood disorders, further examination is rarely employed.<sup>3 17</sup> Several authors have advocated screening for OSA in psychiatric patients, as this will hasten appropriate diagnosis.<sup>5 17 19 22-26</sup> Treatment of OSA will alleviate hypopnoeas and apnoeas and may improve affective symptoms.<sup>18 23 27-32</sup> Especially in patients with therapy-resistant depression and/or patients with risk factors for OSA like male sex, obesity and older age, OSA must be considered.<sup>17 19 23</sup> Our patient noticed some improvement after starting on citalopram, losing 7 kg of bodyweight and starting CBT, but the most significant improvement was following start of CPAP therapy.

Aside from improving psychiatric symptoms, the treatment of OSA offers other health benefits by reducing the risk of cardiovascular disease<sup>33-35</sup> and neurological damage.<sup>36 37</sup> The hypertension our patient presented with might be related to his OSA. Untreated OSA is associated with a twofold to threefold increased risk of traffic accidents because of daytime

sleepiness.<sup>38 39</sup> Our patient also described almost falling asleep while driving his car. Ascribing symptoms of OSA to a psychiatric disorder may result in inappropriate prescriptions of benzodiazepines, as was the case in our patient. Whereas benzodiazepines are regularly used for treatment of anxiety and sleep(related) problems, benzodiazepines worsen hypopnoeas and apnoeas,<sup>24</sup> which can be life threatening for a patient with OSA. Apart from depression, our patient also suffered from an anxiety disorder. For this patient, it is quite possible that the anxiety was exacerbated by the OSA, as anxiety disorders are also associated with OSA.<sup>30 40</sup> Moreover, daytime tiredness and anxiety are positively correlated in patients with OSA.<sup>41</sup> CPAP treatment also has a positive effect on anxiety,<sup>32</sup> as our patient experienced.

With this case report, we underline the importance of diagnosing and treating OSA in patients with a depressive disorder, even when the depression is preceded by psychosocial stressors. As illustrated by our patient, proper diagnostics may improve quality of life and prevent misdiagnosing affective symptoms as a treatment-resistant depression.

### Patient's perspective

"The whole thing has actually been a positive experience for me, the discovery of the sleep apnoea has changed my life for the better. In hindsight I already had sleep problems and loss of energy for years, before the start of my depressive symptoms. I did not want to complain so I tried to live with it. I am very happy the doctors discovered my sleep apnoea, although it wasn't what I expected when my general practitioner referred me to the psychiatric clinic! The medication and CBT really helped me, but the CPAP completed it. I am well now. I have my moments of feeling a little bit low, but that's only around the fall/wintertime and is always of short duration. I think that's just part of who I am. It has been never as bad as at that time. I realise how important it is to be healthy; the impact of the sleep apnoea, my depression and anxiety has been immense. But now I have my life back. I hope that physicians will learn from my case and will think of sleep apnoea as a cause of depression at an earlier stage."

### Learning points

- ▶ The similarity between daytime symptoms of obstructive sleep apnoea and depressive disorders presents a diagnostic challenge.
- ▶ It is important to be vigilant regarding symptoms of excessive daytime sleepiness and risk factors of obstructive sleep apnoea in patients with depressive disorder.
- ▶ Good history taking of snoring, breathing pauses during sleep, waking up unrefreshed (sometimes with dry mouth and headaches) as well as a thorough physical examination (obesity, hypertension and crowded oropharynx) can point in the direction of obstructive sleep apnoea.
- ▶ Treatment of obstructive sleep apnoea should complement psychiatric or psychological treatment of depression to optimise quality of life, as well as physical health.

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## Reminder of important clinical lesson

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