OBSTRUCTIVE SLEEP APNEA, CPAP AND BIPOLAR DISORDER IS THERE A COMMON LINK?

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D. Esteves-Sousa ¹; J. Facucho-Oliveira ¹; M. Albuquerque ¹; P. Espada ¹; M. Costa ¹; L. Mendonça ¹; J. Tropa ¹
1 – Hospital de Cascais, Departamento de Psiquiatria e Saúde Mental.

BACKGROUND AND OBJECTIVES

Bipolar disorder is a psychiatric disorder characterized by the presence of one or more episodes of mania and frequent episodes of depression. This disorder affects approximately 0.8% of the adult population ^[1,2]. When induced by substances is called substance/medication-induced bipolar and related disorder ^[2].

Obstructive sleep apnea (OSA) is one of the three types of sleep disorder characterized by complete or partial cessation of breathing during sleep. OSA syndrome has a prevalence of 2–4% in the general population, the risk of which is increased by obesity ^[1].

Fig. 1 – CPAP and the treatment of OSA.

A connection between sleep disturbances and psychiatric disorders has been reported in previous investigations ^[1,3]. Conventionally, OSA has been associated with depressive disorders, possibly by chronic hypoxemia or by association with another medical condition ^[3,4]. A previous study, involving a large cohort of 300,000 patients, showed not only a major rate of depressive disorders, but also major rates of anxiety disorders, post traumatic stress disorder, psychosis, and bipolar disorders in patients suffering from OAS, as compared to non-OAS patients ^[4].

Also, it has been observed that the correction of OSA with CPAP improves the affective and cognitive status of clinically depressed OAS patients. So it is expected the same improvement in OSA patients with bipolar disorder with CPAP. However, the evidence is scarce ^[5,6,7].

On the other hand, in the literature there are a couple of case-reports of manic episodes associated with CPAP. In two of these cases, there was no prior history of bipolar disorder and they were not being treated with mood stabilizers ^[3,7]. The two other cases reported, were manic switches in patients already diagnosed with bipolar disorder ^[1].

Objectives:

Our aim is to review the published literature about the association between obstructive sleep apnea (OAS), continuous positive airway pressure (CPAP) and bipolar disorder. Additionally, we present a case-report about an onset of mania after CPAP in a patient with OAS.

MATERIALS AND METHODS

Non-systematic review of the literature in scientific databases Google Scholar and Pubmed. The case-report was described with data retrieved from the clinical file.

RESULTS

Case-report of CPAP-induced manic episodes:

Here we report a case of a 53-year-old man with no personal or family history of psychiatric illness. He has a medical history of untreated dyslipidemia and hypertension.

In the last few years, the patient was often tired, sleepy during the day, without much energy. Suspecting of a OSA, a polysomnography test was made, and he was diagnosed with a severe OSA. It was initiated CPAP and one month after treatment he developed manic symptoms – pressure of speech, total insomnia, motor hyperactivity, disorientation and confusion, delusions of grandiosity and of persecutory nature and elation of mood – and he got admitted in neurology ward with an initial suspicion of an acute encephalitis. An underlying medical cause was ruled out and the first diagnosed excluded. The symptoms reverted upon cessation of CPAP and the patient was discharged without any medication.

As an outpatient two further manic episodes were observed with re-initiation of CPAP in the next few months, the last one already with mood stabilizers and antipsychotics (valproic acid and quetiapine). Every time CPAP was discontinued the manic symptoms remitted totally.

Graph 1 – Mood variations of the patient according to CPAP initiation.

Hypothesis of mechanisms underlying CPAP-induced mania ^[1]:

- Quickly improvement in oxygenation (SpO₂) with CPAP;
- Correction of pituitary-gonadal axis dysfunction with normalization of low serum testosterone levels;
- CPAP use may have influenced the previously set balance of clock gene expression, dysfunction associated with OSA that influences circadian clock;
- Manic switch due to the antidepressants effects of CPAP, similarly like antidepressants or electroconvulsive therapy.

CONCLUSIONS

This case shows a patient with OAS that displayed a first manic episode upon treatment with CPAP, and two further manic episodes induced as CPAP was initiated. This case-report adds present evidence to the previously raised hypothesis of a possible association between CPAP, OSA and mood disorders. Future research will be needed in order to find out more about the physiological connection between this association.

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**HOSPITAL
DE CASCAIS**
DR. JOSÉ DE ALMEIDA