

# Sleep-related Disorders Presenting in the Cognitive Function Clinic

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The diagnosis of dementia syndromes and their differentiation from other causes of memory complaint is the chief business of the neurological cognitive disorders clinic. Perhaps 50% of patients seen in such clinics do not have evidence of a neurodegenerative disorder. Although many of these individuals have purely subjective memory impairment, perhaps in the context of anxiety and/or depression, the possibility of specific sleep-related disorders<sup>1,2</sup> must also be borne in mind, as illustrated by the following cases.

### Case 1

A 57-year-old lady was referred from primary care with a 12 month history of forgetfulness around the house and when shopping, and occasional mixing up of words. She had previously been seen by a general physician for the same problem, who performed a CT brain scan which was normal. Neurological history taking revealed that her sleep was impaired, with an estimated 4-5 hours sleep per night, due to unpleasant feelings in her legs which she had to keep moving, sometimes waking her in the night when she would have to get out of bed and walk around. Her husband was aware of her twitching leg movements during the night and was sometimes kicked. The patient's symptoms were adjudged to fulfil diagnostic criteria for restless legs syndrome with periodic leg movements in sleep,<sup>3</sup> and the patient was treated with dopamine agonists.

### Case 2

A 43-year-old man was referred from a psychiatry clinic with a 2 year history of "short term memory loss". Assessment by the psychiatrist had included normal cognitive testing (MMSE 30/30, ADAS-Cog 9/70), CT brain imaging and EEG. Clinical psychology assess-

ment found no depression and suggested the memory complaints reflected "attention impairment". In the neurology clinic, the patient reported forgetting items of shopping and buying unnecessary goods, mislaying items such as keys, and initial forgetting of his destination when driving. He was concerned that the memory problems were due to sleep disturbance. For many years his job had involved shift work with rotation to night duty every two weeks, but increasingly his sleep pattern had become disturbed, with excessive sleepiness during night work and insomnia when trying to sleep during the day. On the Addenbrooke's Cognitive Examination he scored 89/100. A diagnosis of shift-work sleep disorder, a secondary circadian rhythm disorder resulting from exogenous factors, was made,<sup>4</sup> and the patient was treated with modafinil.<sup>5</sup>

### Discussion

Sleep is crucial for physiological memory function, perhaps most especially for memory consolidation,<sup>6</sup> and sleep deprivation is recognised to have adverse consequences on cognitive function.<sup>7</sup> Poor sleep quality is common amongst patients attending memory clinics, moreso amongst those without dementia.<sup>8</sup>

Depression, drug and alcohol use must be considered as potential causes of sleep disturbance in patients with memory complaints, and evidence for other specific sleep-related disorders should be sought. REM sleep behaviour disorder is associated with synucleinopathies such as dementia with Lewy bodies. It is recognized that the impact of restless legs syndrome (RLS) on sleep may induce cognitive dysfunction, affecting particularly those functions thought to be mediated by prefrontal cortex.<sup>9</sup> Cognitive dysfunction may also be a feature of obstructive<sup>10</sup> and central<sup>11</sup> sleep apnoea syndromes, although the former seldom presents de novo in the neurology clinic.<sup>12</sup> ♦

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