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July 2022 Sleep Case of the Month: A Sleepy Scout

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History of Present Illness:
A 25-year-old African American man complaining of excessive daytime somnolence. He was a US Army Ranger scout who received a traumatic brain injury (TBI) from an improvised explosive device attack in Afghanistan which resulted in a loss of about ¼ of his visual field. He said he slept well at night and there was no history of snoring. There was no history of any parasomnias.

PMH, SH, FH:
Other than the traumatic brain injury there was no significant PMH. His most recent brain scan showed only the remnants of his brain injury which resulted in an intracerebral hemorrhage which was managed conservatively. He was single. He did not smoke and had only moderate alcohol intake. There was no significant FH of sleep apnea.

Physical Examination:
Other than the visual field loss his physical examination was unremarkable.

What should be ***done next?***

1. Brain MRI
2. Electroencephalogram (EEG)
3. PSG (polysomnography) sleep study
4. Repeat CT of head
5. All of the above

Correct!
3. PSG sleep study

A study of 98,709 veterans with TBI and 98,709 age-matched veterans without TBI (age 49 ± 20 years). After an average follow-up of 5 (1-14) years, 23,127 (19.6%) veterans developed sleep disorders (1). Those with TBI had a 41% increase in sleep disorders compared to those without TBI (hazard ratio 1.41 [95% confidence interval 1.37-1.44]). The association was stronger for mild TBIs, did not differ appreciably by presence of posttraumatic stress disorder, and remained after a 2-year time lag. Therefore, a PSG sleep study seems reasonable. It is unclear how a repeat head CT scan, EEG or brain MRI would be helpful.
PSG showed mild positional OSA with an apnea-hypopnea index (AHI) of 9 events/hour and lowest oxygen saturation of 93% (using 3% hypopnea rule).

What should be ***done next?***

1. Treat with CPAP
2. Repeat PSG sleep study
3. Multiple Sleep Latency Test (MSLT)
4. 1 or 3
5. All of the above

Correct!
4. 1 or 3

Either treatment of his mild sleep apnea or further investigation with MSLT seems warranted. Although the symptoms of the majority of patients with mild sleep apnea do not improve with CPAP, there are exceptions (2). Unfortunately, he had difficulty with CPAP and was only intermittently compliant. Further history revealed that he developed typical cataplexy associated with anger. He was reluctant to reveal this earlier because he realized that this would likely result in him being med boarded out of the Army.

What should be ***done next?***

1. MSLT
2. Switch CPAP to AutoPap
3. Empirically begin Xyrem
4. 1 or 3
5. All of the above

Correct!
1. MSLT

Helping the patient cover his disability is probably dangerous to him and his fellow soldiers. Narcolepsy after TBI is atypical but does occur (3). Narcolepsy is diagnosed by an MSLT. The MSLT is a full-day test that consists of five scheduled naps separated by two-hour breaks. This test is always done following a sleep study. The MSLT showed mean sleep onset latency (SOL) of 3.8 minutes. The patient had 2 sleep-onset rapid eye movement periods (SOREMPS) with a mean REM latency of 2 minutes.

What ***treatment*** should be offered the patient?

1. Solriamfetol (Sunosi®)
2. Modafinil (Provigil®)
3. Sodium oxybate (Xyrem®)
4. 1 or 3
5. Any of the above

Correct!
5. Any of the above

There are a variety of options for treating narcolepsy (5). Appropriate precautions should be reviewed with each medication. Most begin with sodium oxybate (or the low sodium alternative calcium/magnesium/potassium/sodium oxybate) or modafinil (or its entamomer armodafinil). Solriamfetol a dopamine/norepinephrine reuptake inhibitor (DNRI), was recently approved as was pitolisant, a nonscheduled, first-in-class histamine3 (H3) receptor antagonist/inverse agonist.

There are many factors that play into the choice including ease of prescribing. For example, sodium oxybate needs to be prescribed by an approved prescriber and the drug comes from a single US pharmacy so it takes time and is costly. Approval by insurance is also a problem due to cost and some will insist on a trial of amphetamines first because they are inexpensive. The patient ideally has a bed partner to ensure awakening in the middle of the night to take a second dose, since these are very short acting. It puts narcoleptics into deep sleep and I have had patients refuse because they were concerned they would not get up when their babies cried, etc. Modafinil and amphetamines can be prescribed easily and are safe. There's less experience with the newer agents solriamfetol and pitolisant which are also very costly.

I usually recommend referral to a sleep specialist for treatment of narcolepsy. Recently, modafinil and other stimulants

have come under increasing scrutiny by State Boards of Pharmacy.

This patient was treated with modafinil. With a diagnosis of narcolepsy and cataplexy he was med boarded and left the military. When last seen he was working and not on any medications, possibly using strategic napping to control symptoms.

References

1. Leng Y, Byers AL, Barnes DE, Peltz CB, Li Y, Yaffe K. Traumatic Brain Injury and Incidence Risk of Sleep Disorders in Nearly 200,000 US Veterans. Neurology. 2021 Mar 30;96(13):e1792-e1799. [CrossRef] [PubMed]
2. Quan SF, Budhiraja R, Batool-Anwar S, Gottlieb DJ, Eichling P, Patel S, Shen W, Walsh JK, Kushida CA. Lack of impact of mild obstructive sleep apnea on sleepiness, mood and quality of life. Southwest J Pulm Crit Care. 2014;9(1):44-56. [CrossRef]
3. Ebrahim IO, Peacock KW, Williams AJ. Posttraumatic narcolepsy--two case reports and a mini review. J Clin Sleep Med. 2005 Apr 15;1(2):153-6. [PubMed]
4. Thorpy MJ, Dauvilliers Y. Clinical and practical considerations in the pharmacologic management of narcolepsy. Sleep Med. 2015 Jan;16(1):9-18. [CrossRef] [PubMed]
5. Nallu S. Narcolepsy Treatment & Management. Medscape. August 03, 2020. Available at: https://emedicine.medscape.com/article/1188433-treatment#d10.