Patient Management Problem

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Relationship Disclosure:
Dr Thorpy serves on the speakers bureaus and consults for Jazz Pharmaceuticals and Teva Pharmaceuticals and has provided expert witness testimony for a legal case on a sleepiness motor vehicle accident.

Unlabeled Use of Products/Investigational Use Disclosure:
Dr Thorpy reports no disclosure.

The following Patient Management Problem was chosen to reinforce the subject matter presented in the issue. It emphasizes decisions facing the practicing physician. As you read through the case you will be asked to complete 12 questions regarding history, examination, diagnostic evaluation, therapy, and management. For each item, select the *single best response*.

In order to obtain CME credits, subscribers must complete this Patient Management Problem online at *www.aan.com/continuum/cme*. A tally sheet is provided with this issue to allow the option of marking answers before entering them online. **A faxable scorecard is available only upon request to subscribers who do not have computer access or to non-subscribers who have purchased single back issues (send an email to *ContinuumCME@aan.com*).**

Upon completion of the Patient Management Problem, participants may earn up to 2 hours of *AMA PRA Category 1 Credits*™. Participants have up to 3 years from the date of publication to earn CME credits. No CME will be awarded for this issue after February 29, 2016.

Learning Objective

Upon completion of this activity, the participant will be able to:

- Describe an approach to the differential diagnosis, clinical evaluation, and management of a patient presenting with excessive daytime sleepiness.

Case

A 20-year-old female college student presents with lethargy and daytime sleepiness that interfere with her ability to study and have occurred for the past 4 years. She states that she falls asleep whenever she is inactive, especially during lectures, when watching television, or when reading. In addition she has difficulty sleeping at night. She lives in rural Connecticut with her parents and 18-year-old brother. At the age of 13, she was diagnosed with attention deficit hyperactivity disorder and was placed on methylphenidate; at age 16, she was placed on an antidepressant because of depression. The depression at times was severe, and she even received electroconvulsive therapy, which was temporarily effective. Because of her lethargy she has been seen by an endocrinologist and was found to have a hypothyroid condition; levothyroxine was prescribed. The only other medication she is taking is an oral contraceptive.

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Further questioning reveals that the patient usually goes to bed between 2:00 AM and 3:00 AM, takes about 1 hour to fall asleep, and gets out of bed in the morning between 10:00 AM and 2:00 PM. On days when she has morning classes, she is either unable to get out of bed to get to school or she is very fatigued and easily falls asleep while at school. The patient does not have cataplexy or hallucinations, but she does have rare episodes of sleep paralysis. She dreams a lot at night and occasionally dreams during naps.

▶ 1. Considering the above patient history, which of the following is the most likely initial working diagnosis?

A. circadian rhythm sleep disorder
B. hypersomnia caused by a medical disorder
C. hypersomnia caused by a psychiatric disorder
D. hypersomnia caused by drugs or medications
E. hypersomnia of central origin

▶ 2. What is the next most useful information to obtain regarding the patient's symptoms?

A. actigraphy
B. Epworth Sleepiness Scale
C. polysomnogram
D. psychiatric evaluation
E. sleep log or diary

The patient completes an ESS in the office. The result is 16 out of 24, indicating severe daytime sleepiness. This result helps to differentiate fatigue from sleepiness. Fatigue, which is not associated with excessive sleepiness, is more likely to be a feature of a medical or psychiatric disorder rather than a specific sleep disorder. The patient then undergoes a physical examination.

▶ 3. Which of the following aspects of the physical examination is most likely to be of help in the evaluation of this patient?

A. abdominal examination
B. cardiovascular examination
C. head and neck examination
D. neurologic examination
E. pulmonary examination

On physical examination the patient is 168 cm (66 in) tall and weighs 90.7 kg (200 lbs); her body mass index is 32.3 kg/m^2. Her neurologic examination is normal. Head and neck examination show a Mallampati

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class of II and the presence of small tonsils. Her neck size is 16 inches in circumference. She has a mild degree of nasal congestion in the right nostril. There is no hirsutism or acne.

▶ 4. Which of the following diagnoses does the physical examination suggest?

A. hypothyroidism
B. intracerebral tumor
C. Kleine-Levin syndrome
D. narcolepsy
E. obstructive sleep apnea syndrome

Sleep studies are required to determine whether a specific sleep disorder, such as OSA or a hypersomnia of central origin, is present. Because of the circadian rhythm features, an actigraphic recording is ordered for 2 weeks, to be followed by an overnight polysomnogram and multiple sleep latency test. Blood work is arranged.

▶ 5. Which of the following laboratory tests is most useful and practical for determining a possible cause of this patient's symptoms?

A. CSF hypocretin level
B. human leukocyte antigen testing
C. routine blood CBC and chemistry
D. serum Lyme antibody test
E. thyroid function tests

The patient has 2 weeks of actigraphy that shows a pattern of variable sleep-onset times between 11:00 PM and 2:00 AM and variable wake-up times between 7:00 AM and 10:00 AM. She then undergoes a polysomnogram followed by a multiple sleep latency test (MSLT). The patient's bedtime was 10:23 PM. The following results were obtained: sleep latency, 5 minutes and 34 seconds; total sleep time, 7 hours and 35 minutes; sleep efficiency, 92%; REM latency, 11 minutes; REM sleep percentage, 37%; apnea-hypopnea index, 3.4 events/h; lowest oxygen saturation, 95%; and MSLT with mean sleep latency of 1 minute and 5 seconds and five sleep-onset REM periods (SOREMPs). Routine laboratory studies, thyroid function tests, and Lyme antibody screening are negative.

▶ 6. Based on these test results, which of the following is the most likely diagnosis?

A. depression
B. idiopathic hypersomnia
C. narcolepsy
D. obstructive sleep apnea syndrome
E. recurrent hypersomnia

A diagnosis of narcolepsy is made, and the patient is educated about the disorder. She is advised to keep a more stable sleep-wake pattern with a regular bedtime and a regular wake-up time ensuring that she gets no less than 8 hours of sleep a night. She is advised to use naps as necessary, up to two per day, but to limit them to less than 20 minutes in duration.

▶ 7. Which of the following medications should be considered?

A. amphetamines
B. methylphenidate
C. modafinil
D. selegiline
E. sodium oxybate

The patient is started on armodafinil 150 mg per day.

▶ 8. Which of the following potential side effects of armodafinil is the most important to note to this particular patient?

A. cardiac arrhythmias
B. changes in psychiatric state
C. headaches
D. reduced efficacy of oral contraceptives
E. rashes

Armodafinil is helpful in improving the patient's sleepiness, but approximately 1 week after starting the medication she develops a rash on her arms and legs that appears to be related to the armodafinil.

▶ **9.** Because of the rash, which of the following treatments is a viable alternative for this patient?

A. amphetamine salts
B. dextroamphetamine
C. methylphenidate
D. selegiline
E. sodium oxybate

After 1 year of therapy, the patient has established a more stable sleep pattern and is emotionally more stable but she reports muscle weakness with emotion. She notices a sensation of needing to reach for a chair when she gets excited to avoid slumping to the ground. The episodes occur approximately 2 times per week and greatly concern her.

▶ **10.** Which of the following medications should be prescribed?

A. amphetamines
B. atomoxetine
C. clomipramine
D. sodium oxybate
E. venlafaxine

The sodium oxybate is effective at controlling her cataplexy, but the patient continues to have some school and relationship concerns related to her illness and requests advice on where to turn for additional help with her condition.

▶ **11.** Referral of the patient to which of the following services is most appropriate at this time?

A. Narcolepsy Network
B. nutritional consultation
C. occupational therapy
D. physical therapy
E. social work consultation

Two years later, the patient has married and wishes to start a family. She is concerned about the medications she is taking and how they might affect a pregnancy.

▶ **12.** Which of the following represents the most appropriate next step in managing this patient, given her desire to start a family?

A. change to different medications
B. continue the medications through pregnancy
C. discuss therapeutic options with the patient
D. reduce the dosage of the medications
E. stop all medications immediately