

# Virtual Mentor

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## CLINICAL CASE

### “Doc, I Need a Smart Pill”—Requests for Neurologic Enhancement

Commentary by Dan Larriviere, MD, JD

Dr. Warren, the only neurologist in a hardscrabble town of 7,000 residents, looked at his new patient and chewed his lip. They were sitting in a small examining room at Dr. Warren’s clinic. The patient, Mr. Conway, was a soft-spoken 28-year-old unemployed sales clerk who had just explained the reason for his visit: recently laid off, and with no other job prospects in sight, he wanted to attend graduate school. This would require him to take the Graduate Record Examination (GRE), but Mr. Conway said he would have “extreme difficulty” remaining focused for the full 4-hour length of the exam. He wanted Dr. Warren to prescribe something to help him stay focused and think better.

“Just temporarily, Dr. Warren,” the polite Mr. Conway said. “Just so I can do my best on the exam.”

Dr. Warren had listened to his patient’s story with great sympathy. Mr. Conway needed a scholarship to attend graduate school, and a low score on the test would spoil his chances. Based on a growing literature, modafinil might help Mr. Conway focus during the long test. Dr. Warren had explained to Mr. Conway that, because he did not have symptoms of attention deficit disorder (ADD) or other neurological problems, prescribing a cognitive-enhancement drug would be hard to justify.

Dr. Warren asked himself whether helping people without medical impairment perform better academically was an accepted goal of medicine. How strong was the evidence that the medication would improve Mr. Conway’s performance? Supposing it would, could *not* prescribing the drug be considered “harming” Mr. Conway, that is, making him worse off than he was now?

Alternatively, rebuffed by Dr. Warren, Mr. Conway might seek the desired drugs from a local family doctor or other nonneurologist who lacked experience with such medications and would provide him with a lower standard of care. But granting Mr. Conway’s wish could entail serious complications. First, Mr. Conway would receive a powerful psychotropic drug for a nonmedical reason. Mr. Conway predicted having trouble concentrating for the entire test, but that didn’t constitute real cognitive impairment in Dr. Warren’s opinion, given the protracted nature of the exam. Second, if Mr. Conway aced the test and received a scholarship, he might brag about the achievement to his family and friends, earning Dr. Warren a reputation for dispensing “smart drugs” and flooding him with other patients seeking prescriptions for even less legitimate reasons.

Finally, there was matter of Mr. Conway's long-term goals. Delighted by his performance on the GRE, he might find himself "needing" more cognitive-enhancement drugs to stay sharp during long hours of graduate study. Writing papers, taking exams—it wouldn't end with the GRE. He wouldn't want the drug "just temporarily." He'd be back.

### **Commentary**

This case raises the issue of neuroenhancement (NE)—the use of prescription medications such as methylphenidate or modafinil to enhance memory or cognitive abilities, rather than to treat a diagnosed medical or mental condition. Although the actual prevalence is unknown, some data suggest that NE is widespread. Surveys of college students have found that between 4 percent and 34 percent of the respondents had used NE illegally, over half of them for the first time while in college. The vast majority of respondents used NE to "stay awake to study" or to "concentrate on my work."

NE is not limited to college students. In 2008, the journal *Nature* surveyed its readers and found that one in five of the 1,400 respondents from 60 countries had used NE to stimulate their focus, concentration, or memory, and 80 percent of them were of the opinion that healthy adults should be permitted to take such drugs if they wished to do so. With the sales of the two best-selling drugs used for NE approaching \$1 billion a year and consumer demand continuing to grow, the issue is unlikely to disappear anytime soon. Physicians should therefore expect requests for NE to reach them with increasing frequency during their careers.

### **Is Someone Who Requests NE a Patient?**

While an argument can be made that a physically and mentally healthy person who requests NE is not a patient because he or she does not require treatment of symptoms, disease, injury or disorder, it is important to remember that the existence of a patient-physician relationship does not depend on the patient's state of health. Rather, the establishment of the relationship is voluntary, and the formation requires the intent of both parties (except in emergency situations). Physicians may generally decide which patients they will accept and may refuse to see someone as long as the reasons for refusal do not violate legal principles against discrimination.

In the present case, a patient-physician relationship was formed when Dr. Warren agreed to see Mr. Conway, and Mr. Conway arrived at the scheduled time. The presence of the patient-physician relationship creates professional and ethical obligations that Dr. Warren must fulfill until the relationship is ended in an appropriate manner. Mr. Conway's request for NE does not negate that relationship.

### **How Should Dr. Warren Respond?**

Dr. Warren is ethically obligated to take his patient's request for NE seriously. However, Dr. Warren also has an obligation to minimize harm (nonmaleficence) and maximize good (beneficence) for his patients. Rather than dismissing Mr. Conway's request out of hand, Dr. Warren may wish to interpret the request as one that stems

from a decline in cognitive functioning. Thus viewed, the request becomes a chief concern and Dr. Warren has a duty to perform an appropriate history and physical exam to determine the patient's current level of function and whether it represents a significant change from Mr. Conway's baseline. After the history and physical exam, Dr. Warren will need to decide whether any further tests are necessary to complete an adequate evaluation. If Mr. Conway does not have sufficient signs, symptoms, or abnormal test results to satisfy criteria for a medical or mental health condition, then he would be considered "normal," and a prescription would be an enhancement rather than a treatment.

### **Is It Ethical to Prescribe NE?**

While much has been written about the ethics of NE, there is no consensus concerning the ethics of the practice. Recently, the Ethics, Law and Humanities Committee of the American Academy of Neurology (AAN) published a guidance statement for neurologists fielding adult patients' requests for NE [1]. To frame the question of NE's appropriateness, the committee considered physicians' professional activities as they relate to the traditional goals of medicine: prevent and diagnose disease or injury; cure or treat disease or injury; reduce suffering; educate patients about disease and injury; help patients die with peace and dignity; reassure the "worried well." They then divided those activities into three domains.

In the first of the AAN's domains of physician activity are those practices that are consistent with the traditional goals of medicine outlined above; they are considered ethically obligatory. In the second domain are those practices that do not serve the traditional goals of medicine, but are accepted by society because they require medical knowledge, serve other socially useful purposes, and do not compromise the profession's ability to fulfill its social mission. Examples of these practices are aesthetic forms of surgery and the provision of expert witness testimony in malpractice cases. Activities in this domain are considered ethically permissible without being ethically obligatory. The third domain consists of those practices that undermine the profession's core values and consequently are considered ethically prohibited. Examples of such practices include participation in executions and the torture and interrogation of detained prisoners.

The committee concluded that prescribing neuroenhancers was most analogous to aesthetic surgery and would fall into the second domain of ethically permissible activity, which makes its use subject to the individual physician's judgment. Physicians who believe their role should be limited to the traditional goals of medical practice will be less likely to prescribe NE than physicians who view their role as assisting more broadly with patient-defined goals of well-being.

### **Ethical and Social Considerations**

As mentioned above, physicians are under a general ethical obligation to maximize benefits and minimize harm to patients under their care. In traditional medical practice, this obligation involves weighing harms due to illness or injury against the risks and benefits of a proposed treatment. In the case of neuroenhancement, the

risks must be weighed against what a patient hopes to gain from the medication—in this case performing well on a standardized test. Such a benefit may be difficult to quantify, since test performance is determined not only by ability to concentrate during the test but by adequate preparation, among other factors. Dr. Warren is also correct to expect that a high test score will act as positive reinforcement, perhaps persuading Mr. Conway that he should continue to use the medication during graduate school—an area where the benefits of taking the drug may be even harder to define.

In addition to the difficulty of identifying and defining the goals of therapy, Dr. Warren must keep in mind that the data for the efficacy of NE in a normal population are not robust. Published studies suggest that effects vary with patient characteristics (e.g., IQ), age, and task type (novel or repetitive) and, in some cases, actually worsen cognitive function. The idea that simply taking a NE drug “makes someone smarter” ignores the complexity of cognitive function. Too, the long-term effects of NE medications in a normal population have not been adequately studied. Dr. Warren may ethically refuse to prescribe NE for these clinical reasons.

Students of ethics will point out that Dr. Warren is under an ethical obligation to respect the autonomy of his patient. This principle does not always supersede other ethical principles, however, and physicians do not honor autonomy by giving patients prescriptions just because they request them. Physicians should decline to honor the request for NE if, in their clinical judgment, the patient’s welfare will be compromised. If Dr. Warren declines to prescribe NE, respect for autonomy requires that he explain his reasoning to Mr. Conway in terms that the latter can understand, without being demeaning or disrespectful. Dr. Warren should also help Mr. Conway identify ways in which he may strive to achieve his goals without the use of NE, such as making sure that he has proper sleep hygiene, is getting adequate exercise, and so on.

One other implication of respect for autonomy bears mention. If he chooses to prescribe NE to Mr. Conway, Dr. Warren must adequately inform him about the risks associated with the use of the medication so that Mr. Conway’s decision can be truly autonomous. The information disclosed must include that paucity of data concerning NE efficacy and its short- and long-term effects on patients who do not need it for medical reasons.

Finally, Dr. Warren should consider the fact that NE medications are not likely to be covered by third-party payors. Consequently, patients have to pay for them out-of-pocket. Can Mr. Conway afford them? This will have the effect of limiting use of these medications to people who can afford them—probably a small segment of the population. Our society tolerates inequality of distribution related to inability to pay (for example, in cosmetic surgery or concierge medical practice), but Dr. Warren may not hold that belief.

## Conclusion

Decisions about prescribing NE take place within the patient-physician relationship, one in which physicians have professional and ethical obligations, even if the patient's sole purpose is to acquire neuroenhancement drugs. Physicians are not ethically obligated to prescribe NE to patients who request it and may ethically refuse to do so. On the other hand, according to the recent American Academy of Neurology guidelines, prescribing NE is ethically permissible, provided that the physician adheres to bioethical principles of respect for autonomy, beneficence, nonmaleficence, and distributive justice and that practice standards derive from those principles.

## References

1. Larriviere D, Williams MA, Rizzo M, Bonnie RJ; AAN Ethics, Law and Humanities Committee. Responding to requests from adult patients for neuroenhancements: guidance of the Ethics, Law and Humanities Committee. *Neurology*. 2009;73(17):1406-1412.

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