Should physicians be taking cognitive-enhancing drugs?

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With the advent of the pharmacological age, a brave new world where the neurological enhancement of the human mind through chemical substances is no longer confined to the realm of science fiction. Variously described as cognitive enhancing drugs, smart drugs, or nootropics, there is an ever-growing list of drugs on the market that can improve mental function such as memory, attention, motivation, and concentration.1 While initially researched for the therapeutic treatment of psychiatric disorders such as Alzheimer’s and Attention-Deficit Hyperactivity Disorder (ADHD), there is increasing evidence that various stimulants and antidepressants are being used off-label for the enhancement of mental performance in healthy individuals.2

The controversial use of these drugs by university students and the military has been well documented in the literature.3 However, physicians have not been a focus in the discussion despite being a susceptible demographic group with predisposing risk factors. The high levels of stress, fatigue, and pressure especially prevalent among residents and certain shift work specialties, such as emergency medicine,3,5 may make the use of these cognitive-enhancers appealing. As a result, a candid discussion of the ethical implications is well warranted. This article examines the relevant ethical arguments that are important in determining whether physicians should be taking cognitive-enhancing drugs.

The wisdom of repugnance: the “yuck” factor

While the use of neuro-altering drugs is widely deemed morally acceptable as a medical intervention in neurological disorders, the use of these same drugs in healthy individuals often elicits guttural reactions.6,7 The use of amphetamines for narcolepsy is not met with nearly the same outcry as its use by ambitious university students to improve test scores. Once the line crosses from treatment of disease to enhancement of normal function, a fundamental change in acceptability seems to occur. One explanation is that the process of cognitive improvement through a pill is unnatural or inauthentic.8 However, our use of other more common chemical remedies to enhance cognition is not anything new or fundamentally more “natural.” The widespread use of caffeinated beverages is a form of cognitive-enhancement,9 but has not evoked public scrutiny or protest. Why should the ethical considerations change depending on whether the medium is in the form of a drink or pill?

Some arguments that call into question whether there is anything intrinsically wrong with medicating to enhance cognitive function may border on begging the question, but nevertheless have their implications. If the very principle of medicating the healthy is unethical, then advocating for pharmacological enhancement within a profession where public perception and patient trust is so important may be imprudent.

Maximizing utility and the creation of SuperDocs

The use of cognitive enhancing drugs by physicians can potentially improve the well-being of both physicians and their patients. The well-documented high levels of fatigue, sleep-deprivation, and stressful environments that physicians endure have been shown to lead to lowered vigilance and an increase in medical errors.10 In a double-blind placebo controlled study with sleep deprived emergency physicians, the stimulant modafinil (Provigil®) was shown to improve cognitive ability by improving sustained attention as well as increasing cognitive control and working memory.11 It is not a far stretch to consider how more attentive, alert, and cognitively functioning physicians can reduce medical errors, improve productivity, and have the fortitude to be more patient-centred in their approach. Not only would this benefit patients by improving their health outcomes, it would benefit the physician by lowering their levels of anxiety and stress, and may even benefit the health care system by improving physician efficiency. If a hypothetical ideal cognitive enhancer can augment desired and predictable changes in mood, personality, attention, and memory, society as a whole may be better off. From a utilitarian point of view, the potential benefits of cognitively enhanced physicians may be too great to ignore with ever-progressing advances in pharmacological agents.

Primum non nocere

Therapeutic agents have inherent risks and the potential for harm; the maxim of “first, do no harm” remains a fundamental principle of medicine and serves as a reminder of how purported beneficial interventions often have unforeseen and undesirable consequences. While psychotropic drugs such as stimulants and antidepressants are widely prescribed medications with few side effects,12 even minimal risks need to be taken into account when used by healthy individuals. While patients with severe symptomatic neurological deficits may tolerate the risks involved, the threshold of risk tolerance is significantly lower for healthy individuals.14 In the study of the use of modafinil among sleep-deprived physicians, the treatment group found it more difficult to sleep when the opportunity arose.15 While sleep-deprived physicians could use the drug to maintain attention and cognitive function in the short term, the resulting trade-off may lead to a Faustian bargain. Even worse, the long term effects of these psychotropics are largely unknown.16 The pendulum would certainly take a devastating swing from benefit to harm if a generation of
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medicated and neurologically enhanced physicians were later found to suffer from cognitive decline or memory loss in later years. Unfortunately, when faced with the proposition of obtaining immediate tangible benefits from these neurological enhancers, these hidden costs may not be taken into account when considering their use. Given the propensity of human nature to value short term results, as exemplified by the popular use of sildenafil (Viagra®) and cosmetic use of botulism toxin (Botox®), the potential for the overuse and abuse of these pharmacological remedies is a concern.

"But everyone else is doing it"

One of the most commonly cited issues with the use of cognitive enhancing drugs by university students is its perception as a form of cheating, and one could argue that ambitious residents or physicians who take these cognitive enhancers to "get ahead" violate the sanctity of fair competition on an even playing field. Although the field was never strictly even to begin with due to socioeconomic, genetic, and environmental determinants, improving productivity through artificial pills may undermine the value of effort and hard work. The issue especially becomes problematic if there is an unequal distribution of use amongst different physicians or different specialties. Should use only be recommended for specialties with the highest levels of fatigue, sleep deprivation, and stress? Should only those physicians deemed most in need, namely those with the worst attention and cognitive ability, be prescribed these enhancers?

If there are no regulations in place, unintended and indirect coercive forces may come into play where physicians who otherwise would not have taken these enhancers now feel compelled to do so. If doctors who use the cognitive enhancing drugs achieve improved performance and are perceived as superior by patients or colleagues, this puts increased pressure on and makes it more difficult for those who would otherwise opt out. Furthermore, with the emphasis today on outcomes-based medicine and the importance of hospital ratings on budgets, there may also be external pressure from the employer or administration. In the event that these drugs could approach a pharmacological ideal with maximum benefit and negligible harm, could these cognitive enhancers become as compulsory as scrubbing in to protect the safety of the patients?

Conclusion

While a number of ethical issues are left largely unexplored, such as personal identity, distributive justice, or intangible values, a cursory discussion concerning beneficence, nonmaleficence, as well as autonomy has been attempted. Currently, with our poor understanding of the long-term risks of these cognitive-enhancing drugs, the potential for serious harm seems to outweigh the marginal cognitive benefits observed in healthy individuals. The use of these drugs is likely a reflection of our society and medicine as a practice, where the 'quick fix' is often the most attractive strategy. Alternative solutions certainly exist, such as optimizing shift schedules and improving work-life balance. These strategies present less risk and address the root of the problem: over-work, sleep-deprivation, and fatigue. However, as drug advances are made with improved performance records and as better understanding of the long-term effects become available, the reality is that a growing number of people will practice neurocognitive enhancement in the coming years. The sale of various nutritional supplements that are purported to have cognitive-enhancing function have reached a billion dollars annually in the United States alone, and market demand is projected to rise. Given the easy accessibility of drugs to physicians and compounded with their propensity to self prescribe, the discussion concerning the guidelines and regulations for the use of cognitive-enhancing drugs needs to begin now.

References

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