11. COGNITIVE ENHANCEMENT AND THE NEUROETHICS OF MEMORY DRUGS

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Abstract: In response to recent developments in neuropharmacology, some are asking what the potential impact of memory drugs might be in relation to common values and social justice; others are concerned with legal and military implications, including possible requirements or prohibitions of enhancement pharmaceuticals in the workplace. In considering these drugs, society must weigh what the collective benefits or costs might be in relation to individual rights and choices. This chapter addresses the neuroethics of memory drugs by taking stock of differing rhetorics and values in personal and collective memory. Following an overview of current “memory and forgetting” drug development, this chapter asserts the idea that cultural shifts in how we relate to history in general, and to our own stories or memories in particular, can open up approaches to scientific knowledge that carry ethical social advantages. As changes in memory management, both technological and pharmacological, come into play, freedom of thought remains a democratic good and an essential human value that can guide coming debates over the uses and applications of cognitive technologies.

Introduction

Not everything that can be counted counts, and not everything that counts can be counted.

—Albert Einstein

Exciting developments in the neurosciences and related technologies are opening a floodgate of interest in the potential enhancement of cognitive capabilities as well as increasing debate over the ethics and social viability of such interventions in human cognition. Nanotechnology, biotechnology, information technology, and cognitive sciences (NBIC) convergence engages neurocognitive enhancement in a number of applications (e.g., Roco and Bainbridge, 2003; Lynch, 2002; Grill and Kirsch, 2000; Snyder et al., 2003). Generally, “human performance enhancement” refers to the augmentation of human ability (skills, attributes, or competencies) through the use of technology, medicine, or therapy aimed at improving a person’s ability to perform in a given area (Juengst, 1998; Shapiro, 2002). “Neurocognitive enhancement” denotes those technologies and drugs that improve “normal” human capabilities by enhancing, improving, or altering cognition (as with mood, memory, and attention) for better ability (McGaugh, 1991; Gerlai, 2003; Caplan, 2003). Increasingly, new advances in health products,
including neural or cognitive prostheses, in scientific practices of pharmacogenomics, bioinformatics, and neuropharmacology, as well as in long-term prospects of computer-to-brain interface systems, define areas in which NBIC convergence touches on issues of human cognition and the complexities of human thinking in groups and as individuals. Although the application of some of these advancements may still be decades away, authors of a recent Nature Reviews Neuroscience article acknowledge that the normal enhancement of neurocognitive function with drugs “is already a fact of life for many people,” and further, that psychopharmacology is increasingly used for improving the psychological function of individuals who are not ill (Chatterjee, 2004; Farah et al., 2004).

One important area of research and development (R&D) in improving normal neurocognitive capabilities, then, is with memory medicines. Because the function of memory is so central to constituting ourselves as individuals and as thinking and acting social beings, interest in memory drugs as cognitive enhancers will impact the legal, ethical, and social landscape sooner, rather than later. Memory drugs are ostensibly being developed for the therapeutic treatment of age-related cognitive decline. With 21 million people expected to have Alzheimer’s Disease (AD) by the year 2010 (de la Torre, 2004), improvements for the elderly are a key motivator behind massive current research into memory deficit/enhancing drugs. More broadly, 78 million “baby boomers,” representing the largest concentration of wealth of any demographic population on the planet (Canton, 2004), are a major market for memory medicines. Recent and emerging developments in related fields of neuropharmacology, suggest a pressing need to consider the potential impact of memory drugs on how we think about our right to think, with or without therapeutic enablers, and about what the social benefits or costs of such drugs might be.

Neuroethics of Memory Management

Concerned professionals have only just begun to grapple with the novel social issues raised by potential uses of neurocognitive enhancement applications, as implied by the novelty of the term, “neuroethics,” itself (Farah, 2002; Marcus, 2002; Caplan, 2003; Illes et al., 2003; Greely, 2004; Sententia, 2004). Yet, although rampant coverage of bioethical issues fills the pages of medical journals, references to neuroethical quandaries remain quite scarce. For example, a search conducted July 10, 2004, for the term “neuroethics” in the online archives of the Journal of American Medical Association (JAMA) retrieved no items. Nonetheless, experimental scientific literature (Roco and Bainbridge, 2003; Roco and Montemagno, 2004), coupled with forward-looking publications on the ethics and policy of cognitive enhancement (McGaugh, 1991; Caplan, 2003; Wolpe, 2003; Boire,