New Ideas

An Integrated Preclerkship Curriculum in Neuroscience, Psychiatry, and Neurology

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The study's objective was to promote understanding of the integration of preclerkship learning in neuroscience, psychiatry, and neurology and to share the authors' experience with such a program. A dualism, which may have survived in the past for lack of robust evidence of mind-brain relationships, is now increasingly outmoded. Medical school education should reflect the increasing coherence to be found in these fields. The authors describe curricular and course innovations and revisions at Harvard Medical School that have been implemented in successive iterations over the past decade. These changes have depended upon multidisciplinary leadership, planning, and faculty participation, as well as faculty development and closer coordination between classroom- and hospital-based activity. A hybrid, problem-based block course in the second year integrates basic science with neurologic and psychiatric topics that are aligned with practice of relevant clinical skills. The authors have achieved a high level of integration and coordination of these subjects at preclerkship levels in the domains of both knowledge and skills. The students, as well as the faculty, strongly endorse an intellectually coherent and clinically relevant program of integrated preclerkship learning in neuroscience, psychiatry, and neurology. (Academic Psychiatry 1997; 21:212–218)

A modern approach to psychiatry and neurology requires changes in ways of thinking about the mind and brain that should be embedded in both the structure and the content of medical education (1). In this article, we describe the integration and coordination of courses addressing neuroscience and behavior, as part of the "New Pathway" curricular reform effort at Harvard Medical School. These changes are not intended to slight the psychological aspects of psychiatry, but to express in a more coherent way a common task: to develop understanding of the mind and behavior as expressions of nervous system activity. Indeed, by postulating mechanisms by which individual and social experience interact with the brain and can even affect gene expression (2), a greater appreciation for the role of the psyche in illness and health can be fostered. In addition, both systems-level and cellular-molecular-level neurosciences are necessary to understand...
clinical disorders. This new approach contrasts with a common tendency in teaching biologic psychiatry to focus excessively on synaptic pharmacology, which makes it difficult for students to develop a broader view of how the brain works and how mental symptoms might arise. We use preclerkship education to create an interest in and open-mindedness about both neurology and psychiatry as clinical disciplines, and in neuroscience as a research enterprise.

Although many medical schools have made some efforts to join teaching (as well as research and service aspects) of neurology and psychiatry, a review of the limited information in the Association of American Medical Colleges' Curriculum Directory covering all U.S. and Canadian schools (3) does not reveal any comparable, comprehensive integration of the preclerkship program in neuroscience, psychiatry, and neurology. Although others (4) have thoughtfully probed some of these educational issues, a review of relevant journals, as well as multiple personal communications, has not yielded descriptions of such programs, thus encouraging us to share our experience.

THE PRECLERKSHIP NEUROSCIENCE AND BEHAVIOR CURRICULUM

From its inception in 1985, the "New Pathway" curriculum in general medical education at Harvard Medical School (5) has made integrated preclerkship learning in psychiatry and neurology a key element of the second-year program for 160 students. The Human Nervous System and Behavior (HNSB) course has been designed and operated as an interdisciplinary course to stimulate learning of the basic principles that will prepare students well not only for clerkships, but also for the progress and the anticipated challenges as we prepare to enter the 21st century. In the prior curriculum, not only were the various neural disciplines taught separately, but psychiatric and neurologic clinical skills and psychopathology were not aligned or coordinated.

The HNSB course includes one lecture per day; each week, two 2-hour laboratories for anatomy, pathology, and imaging; one live-patient clinical demonstration; and three 2-hour problem-based tutorial sessions, with 8 students and 1 "expert" tutor per group. The problems are presently embedded in case narratives with neuroimages where pertinent; video-based cases are in development. The tutorial faculty typically comprises one-third neurobiologists, one-third academic psychiatrists, and one-third neurologists. Several senior psychiatric residents have participated as tutors with great success.

The HNSB course (occupying a block of 10 weeks in the fall of the second year) runs concurrently and in close coordination with instruction in the physical neurologic and mental status exams and psychiatric interviewing and psychopathology. This model enables direct patient contacts that stimulate interest in basic science and pathophysiology (6,7). Conversely, students carry evolving ideas, such as plasticity and adaptive neural mechanisms, into the coordinated psychiatry sessions. (A longitudinal "patient-doctor" course in the first year includes psychosocial issues, general interviewing, and attention to the emotional and social aspects of disease and illness, but the course does not address mental status examination or psychopathology.)

COURSE CONTENT

In addition to structural integration within the HNSB course and coordination of concurrent courses, many of the tutorial cases that we have used embody both "neurologic" and "psychiatric" aspects (Table 1). To relate the modes of learning and assessment, cases (similar to those used in tutorials) serve as the instruments of final student evaluation. In some instances, we have juxtaposed similar phenomenology because of different underlying mechanisms. For example, we pair a case of complex partial seizures with a case of panic