Education on Genetics for Psychiatric Residents

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Two papers by Hoop et al. (1) and Winner et al. (2) in this issue of *Academic Psychiatry* call attention to the increasingly important need for psychiatric residents to receive a thorough grounding in the role of genetics and genomics in psychiatry as it will be practiced in the future. Taken together, the papers suggest that the topic of genetics is currently slighted in the curricula of many U.S. psychiatric residency training programs.

An understanding of genetics will be critical to future psychiatrists not only for a fuller understanding of the etiology of disease entities, but also for an appreciation of the cause and treatment of psychiatric symptoms. Brain imaging techniques and genetics together are already providing correlative data to shed light on variability of presentation of some illnesses. For example, apolipoprotein E epsilon4 carriers with Alzheimer's disease have been shown to have greater atrophy in the parietal cortex bilaterally and in the right hippocampus than noncarriers with Alzheimer's disease (3). Surprising developmental discoveries involving the genetics of neurodegeneration are also being made. As an example, children and adolescents carrying the epsilon4 allele of the apolipoprotein E gene have been found to have, on average, thinner entorhinal cortices as demonstrated by MRI than do those carrying other alleles (4).

Differences in the tendency to pay more attention to positive or negative elements in the environment have been shown to have a genetic basis. Individuals homozygous for the long allele for the promoter region of the serotonin transporter gene (5-HTTLPR) were recently found to show a marked bias to selectively pay attention to affectively positive material and to selectively avoid affectively negative material in their environment relative to those carrying at

least one of the long alleles for the promoter region, meaning the homozygous long-allele carriers seem more likely to "look on the bright side," which may explain their lower susceptibility to mood disorders than short-allele carriers (5). Research is ongoing on the interaction between trauma and genetic vulnerability to trauma. Variability in the promoter region of the serotonin transporter gene may be associated with the degree of emotional resilience shown by different individuals exposed to trauma (6).

Integrating the most up-to-date scientific information into psychiatry training has been a priority since residencies in psychiatry were introduced. Genetics has been cited as a topic of critical importance in the curriculum of psychiatric residencies in several papers published over the past 15 years (7–9); the publication of two papers on the topic in this issue highlights the recognition of the need for the presence and standardization of a strong didactic curriculum in genetics in residencies. The Psychiatry Program Requirements of the Accreditation Council for Graduate Medical Education (10) currently state, "The didactic curriculum must include the following components: . . . the biological, *genetic*, psychological, sociocultural, economic, ethnic, gender, religious/spiritual, sexual orientation, and family factors that significantly influence physical and psychological development throughout the life cycle" (emphasis added). We believe that the professional associations of individuals involved in psychiatric residency education, including the American Association of Directors of Psychiatric Residency Training (AADPRT) and the Association for Academic Psychiatry (AAP) can play a useful role in helping to develop standard curricula in genetics by incorporating educational materials such as suggested readings, videos, and audiovisual presentations that training programs of all sizes could use to teach the fundamentals of psychiatric genetics to their residents.

The two articles published in this issue of *Academic Psychiatry* together describe the opportunity that currently confronts residency training programs: to successfully educate psychiatrists about the rapidly expanding field of psychiatric

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genetics. Unfortunately, the articles show that most residency programs need to better prepare their trainees but have little ability to respond—most residencies report that their genetics curricula are inadequate and that they have few faculty members who appreciate the importance of training in genetics and who are adequately prepared themselves to teach the field to residents. Lack of evidenced-based curricular training approaches is also a stumbling block to improved education of residents in genetics.

Barriers to improving the current situation include lack of widespread understanding of the need for better genetics training, lack of professional development efforts to help faculty members learn what they need to know about genetics, lack of tested curricular models to teach genetics, lack of seminar time devoted to the topic, lack of integration of genetics into the main competency examinations in psychiatry, and lack of role models among U.S. training programs to demonstrate best practices in genetics education to other residencies.

An opportunity exists for substantial improvement in genetics education of psychiatric residents, and we hope that these two papers will lead to greater awareness of the need for such education and a greater commitment to improving training in the field. We should foster the development of model curricula and urge a nationwide commitment to add competency in the emergent field of psychiatric genetics to the list of things we teach well in our training programs and assess in our graduating residents. Given the rapid evolution of the application of genetic research to psychiatry and the likelihood that psychiatric practitioners of the future will routinely order genetic tests to help clarify their patients' diagnoses and ensure that they are receiving appropriate biological treatments, the papers constitute a timely reminder of the need for psychiatric training programs to prepare psychiatrists for their future practices.

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