Editor's Note: Psychiatric Pharmacogenomics *has just been awarded the second of the two 2010 prizes for excellence in the Biological Sciences category from the American Publishers Awards for Professional and Scholarly Excellence.*

Psychiatric Pharmacogenomics

by David A. Mrazek, MD. Oxford University Press, New York, NY, 2010, 265 pages, $45.00 (hardcover).

Genetic research of psychiatric disorders has evolved considerably over the last 45 or so years. In the 1960s it was not generally thought by most clinicians and many researchers that major psychiatric conditions such as schizophrenia, bipolar disorders, and depression had a genetic contribution. Genetic studies of these conditions were largely encouraged by findings that children of women with schizophrenia who were born at a state hospital, adopted out, and raised by families who were not mentally ill had schizophrenia.[1] This finding was one of the major reasons why the Danish adoption study, which focused on schizophrenia, was undertaken in the 1960s.[2] In mood disorders, the studies at Washington University in St. Louis demonstrating possible X chromosome transmission of bipolar disorder led to a renewed interest in American psychiatry in the genetic studies of bipolar disorders and also some forms of major depression. More recently, the human genome project and its findings have added further impetus and have given tools to researchers to better understand genetic contributions to these disorders.[3] A number of departments of psychiatry are currently involved in studies of patients with these conditions and their families. The hope is to someday identify the genes that are associated with the development of these conditions. Such findings would have two likely results: first, the development of a "blood test" for these conditions to determine if an individual from a family in whom one of these psychiatric conditions is manifest also is likely to have that condition; and second, to further our understanding of the etiology of these conditions so that more appropriate treatments might be developed.

The identification of genetic factors associated with treatment response/nonresponse or used to predict side effects from psychopharmacologic agents is a step along this process. *Psychiatric Pharmacogenomics* reviews the data regarding selected genes, many of which are involved in the metabolism of medications, and how their presence or absence can influence treatment response or nonresponse as well as the development of particular adverse reactions to the medications we use to treat our patients. This volume focuses on 14 genes that have been identified as being important to psychiatric practice. These genes include several in the cytochrome P450 system (2D6, 2C19, 2C9 and 1A2); catechol *O*-methyltransferase, which is involved in the metabolism of catecholamines; transporter genes for norepinephrine, dopamine, and serotonin; and receptor genes for serotonin-1A, -2A, and -2C and dopamine-D2, -D3 and -D4. Major chapters in this book are devoted to discussing genes for the above and their interactions with medications that are used to treat our patients. Chapters relating to the genes of the P450 system discuss the chromosomal location of these genes; their frequency and variants among different ethnic populations; the relationship of poor, intermediate, extensive, and ultrarapid metabolizers to clinical outcome with medications that are metabolized or interfere with these genes; and clinical implications of these findings. There are frequent case reports to illustrate what might happen to an individual who is deficient in one of these genes or is an ultrafast metabolizer for one of these genes.

Probably the most clinically studied of the transporter genes is the serotonin transporter gene. Current information on clinical findings regarding this gene is reviewed. There are also chapters about clinical utility of pharmacogenomic testing and ethical issues related to pharmacogenomic testing and a final chapter on future developments in this area. There is a glossary of genetic and pharmacogenomic terms, a list of generic and brand names of medications relevant to psychiatry, and a rather thorough index.

Pharmacogenomics is a rapidly evolving area as more genes relevant to treatment outcome are studied. The clinical applications of these research findings are important to clinicians who prescribe medications. Furthermore, knowledge of when to order pharmacogenomic testing is an increasingly relevant step in clinical practice.

I found this book somewhat difficult to read from cover to cover, but it would be quite useful as a reference text to be utilized when a patient presents with a history of side effects from low doses of medications or nonresponse to medication. I hope that Dr Mrazek will have some mechanism to provide updates as this field advances.

REFERENCES

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