Psychopharmacology and Psychobiology of Ethnicity

Edited by

Keh-Ming Lin, M.D., M.P.H. Russell E. Poland, Ph.D. Gayle Nakasaki, M.S.W.

Contents

Contributors

Introduction to the Progress in Psychiatry Series David Spiegel, M.D.

Foreword Werner Kalow, M.D.

Section I: Introduction and Overview

- Introduction: Psychopharmacology, Psychobiology and Ethnicity Keh-Ming Lin, M.D., M.P.H. Russell E. Poland, Ph.D. Gayle Nakasaki, M.S.W.
- Overview: The Interface between Psychobiology and Ethnicity Keh-Ming Lin, M.D., M.P.H. Russell E. Poland, Ph.D. Barbara Silver, M.D.
- "Non-biological" Issues Affecting Psychopharmacotherapy: Cultural Considerations Michael Smith, M.D. Keh-Ming Lin, M.D., M.P.H. Ricardo Mendoza, M.D.

Section II: Ethnicity and Psychopharmacology

- Ethnicity and the Pharmacology of Tricyclic Antidepressants Barbara Silver, M.D. Russell E. Poland, Ph.D. Keh-Ming Lin, M.D., M.P.H.
- 5 Ethnicity and Differential Responses to Benzodiazepines Keh-Ming Lin, M.D., M.P.H. Russell E. Poland, Ph.D. Joseph C. Fleishaker, Ph.D. Paul Phillips
- 6 Interethnic Variation to Lithium Therapy among African-American and Asian-American Populations Tony L. Strickland, Ph.D.

William Lawson, M.D., Ph.D. Keh-Ming Lin, M.D. Paul Fu, Ph.D.

Haloperidol and Reduced Haloperidol Plasma Concentrations in Different 7 Ethnic Populations and Interindividual Variabilities in Haloperidol Metabolism Michael W. Jann, Pharm.D. Y. W. Francis Lam, Pharm.D.

Wen-Ho Chang, M.D.

- 8 Influence of Ethnicity on Reduced Haloperidol Concentrations in Blood Theodore Inaba, Ph.D. Toshiyuki Someya, M.D. Morikazu Shibasaki, M.D. Siu Wa Tang, M.D. Saburo Takahashi, M.D.
- Tardive Dyskinesia: Cross-cultural Perspectives 9 Edmond H. Pi, M.D. Mary A. Gutierrez, Pharm.D. Gregory E. Gray, M.D., Ph.D.
- Genetic Polymorphisms of Alcohol Metabolizing Enzymes Related to 10 Alcohol Sensitivity and Alcoholic Diseases Akira Yoshida, Ph.D.

Section III: Ethnicity and Psychobiology

- 11 Ethnicity and Biological Markers Russell E. Poland, Ph.D. Keh-Ming Lin, M.D., M.P.H.
- 12 Biopsychosocial Perspective on Depression in African-Americans Hector F. Myers, Ph.D.
- Clinical and Epidemiologic Studies of Dementias: Cross-ethnic 13 Perspectives Linda Chang, M.S., M.D. Bruce L. Miller, M.D. Keh-Ming Lin, M.D., M.P.H.

Contributors

Linda Chang, M.S., M.D.

Assistant Professor of Neurology, UCLA, Department of Neurology, Harbor-UCLA Medical Center, Torrance, California

Wen-Ho Chang, M.D.

Chief, Laboratory of Biological Psychiatry, Taipei City Psychiatric Center, Taipei, Taiwan

Joseph C. Fleishaker, Ph.D.

Senior Research Scientist, Clinical Pharmacokinetics Unit, Pharmaceutical Research and Development, The Upjohn Company, Kalamazoo, Michigan

Paul Fu, Ph.D.

Professor of Pathology, UCLA, Department of Pathology, Harbor-UCLA Medical Center, Torrance, California

Gregory E. Gray, M.D., Ph.D.

Associate Professor of Clinical Psychiatry and Preventive Medicine, University of Southern California; Director, Adult Psychiatric Inpatient Service, Los Angeles County/University of Southern California Medical Center, Los Angeles, California

Mary A. Gutierrez, Pharm.D.

Assistant Professor of Clinical Pharmacy, University of Southern California, School of Pharmacy, Los Angeles, California

Theodore Inaba, Ph.D.

Professor of Pharmacology, Department of Pharmacology, Faculty of Medicine, University of Toronto, Toronto, Canada

Michael W. Jann, Pharm.D.

Associate Professor, Mercer University, Southern School of Pharmacy, Atlanta, Georgia

Y. W. Francis Lam, Pharm.D.

Assistant Professor, College of Pharmacy, The University of Texas at Austin, Austin, Texas, and the University of Texas Health Science Center at San Antonio, San Antonio, Texas

Werner Kalow, M.D., F.R.S.C.

Professor Emeritus, Department of Pharmacology, University of Toronto, Toronto, Canada

William Lawson, M.D., Ph.D.

Associate Professor of Psychiatry, Department of Psychiatry, University of Arkansas School of Medicine, Chief Assistant, Veteran Administration Medical Center in Arkansas, North Little Rock, Arkansas

Keh-Ming Lin, M.D., M.P.H.

Associate Professor of Psychiatry, UCLA, Department of Psychiatry and Research Center on the Psychobiology of Ethnicity, Harbor-UCLA Medical Center, Research and Education Institute, Inc., Torrance, California

Ricardo Mendoza, M.D.

Associate Clinical Professor of Psychiatry, UCLA, Department of Psychiatry and Research Center on the Psychobiology of Ethnicity, Harbor-UCLA Medical Center, Research and Education Institute, Inc., Torrance, California

Bruce L. Miller, M.D.

Associate Professor of Neurology, UCLA, Department of Neurology, Harbor-UCLA Medical Center, Torrance, California

Hector F. Myers, Ph.D.

Associate Professor, Department of Psychology, University of California, Los Angeles; Director, Biobehavioral Laboratory, Department of Psychiatry, Charles R. Drew University of Medicine & Science, Los Angeles, California

Gayle Nakasaki, M.S.W.

Assistant Director, Research Center on the Psychobiology of Ethnicity, Harbor-UCLA Research and Education Institute, Inc., Torrance, California

Paul Phillips

Senior Medical Associate, Clinical Pharmacokinetics Unit, Pharmaceutical Research and Development, The Upjohn Company, Kalamazoo, Michigan

Edmond H. Pi, M.D.

Director, Transcultural Psychiatry and Professor of Clinical Psychiatry, University of Southern California School of Medicine, Los Angeles, California

Russell E. Poland, Ph.D.

Research Pharmacologist, UCLA, Department of Psychiatry and Research Center on the Psychobiology of Ethnicity, Harbor-UCLA Medical Center, Research and Education Institute, Inc., Torrance, California

Morikazu Shibasaki, M.D.

Lecturer, Department of Psychiatry, Shiga University of Medical Science, Seta-Tsukinowa, Otsu-shi, Shiga-ken, Japan

Barbara Silver, M.D.

Assistant Professor of Psychiatry, UCLA, Department of Psychiatry and Research Center on the Psychobiology of Ethnicity, Harbor-UCLA Medical Center, Research and Education Institute, Inc., Torrance, California

Michael Smith, M.D.

Third year resident, Department of Psychiatry, Harbor-UCLA Medical Center, Torrance, California

Toshiyuki Someya, M.D.

Lecturer, Department of Psychiatry, Shiga University of Medical Science, Seta-Tsukinowa, Otsu-shi, Shiga-ken, Japan

Tony L. Strickland, Ph.D.

Associate Professor of Psychiatry, UCLA and Drew University of Medicine and Science, Associate Director of Biobehavioral Laboratory, Department of Psychiatry and Human Behavior, Drew University of Medicine and Science, Los Angeles, California

Saburo Takahashi, M.D.

Professor and Chair, Department of Psychiatry, Shiga University of Medical Science, Seta-Tsukinowa, Otsu-shi, Shiga-ken, Japan

Siu Wa Tang, M.D.

Chief of Psychiatry, Long Beach Veteran Administration Medical Center, Associate Professor of Psychiatry, University of California at Irvine, Irvine, California

Akira Yoshida, Ph.D.

Director, Department of Biochemical Genetics, Beckman Research Institute of the City of Hope, Duarte, California

FOREWORD

Psychopharmacology, psychobiology, and ethnicity are all heavy words, each with its own dictionary definition. Their combined use in a book title indicates a struggle, a medical struggle to break new ground. They also bring up a major question: When assessing and treating psychiatric illness, how important is it to keep in mind that the patient is a descendant of people with a distinct biological and cultural background, in addition to being an individual?

Until several decades ago, individuality was often ignored by the medical profession, and treatment tended to be standardized, disregarding inter-individual differences in responses. Then, in the 1950s and 1960s, came the discovery of enzyme induction and thereby the realization that intake of certain foods or drugs could adaptively modify drug metabolism and thereby drug response. Concurrently, there was the rise of pharmacogenetics and an increased understanding of inborn differences in drug metabolism and/or drug response. More recently we are beginning to realize how both adaptive and genetic forces may cause pharmacological distinctions between human populations who were in the past, or are currently, separated by distances or other geographical barriers.

This book provides a unique overview of the cases and the causes of differences between ethnically defined populations as they respond to psychoactive drugs. Biochemical distinctions may result in dissimilar benefits of drug treatment, as well as variations in drug toxicity or addiction liabilities. However, much of this important new knowledge is still fragmentary. We often do not know which drugs are and which are not affected by a given enzyme variant. If affected, how important is this clinically? How frequent are certain metabolic deficiencies in particular populations? Should recommendations for dosage of a drug be deliberately altered in some populations? Many questions remain to be answered which will require collective efforts

for a long time to come.

While providing some initial answers to these important questions, this book also will give the reader a taste of some of the research which is currently being pursued in different laboratories. In addition, the existence of this book illustrates that interethnic variation in drug response and the interpretation of "biological markers" is becoming a recognized area worthy of a combination of efforts. This is most clearly demonstrated by the recent establishment of the Research Center on the Psychobiology of Ethnicity, at the Harbor-UCLA Medical Center, Research and Education Institute, Inc., in Torrance, California, which has been made possible with support by the National Institutes of Mental Health: without this Center, this book would not have been written. Another equally encouraging sign is the founding of the "Pacific Rim Association for Clinical Pharmacogenetics," a high caliber academic organization with the aim to stimulate interethnic research. Several members of this Association are authors of chapters in this book. With a concerted effort of scientists and clinicians associated with these and other prominent organizations, there is reason to believe that the field will progress in an accelerated fashion, and cross-ethnic psychiatric assessment and care can be done in an increasingly more informed and rational way.

Werner Kalow, M.D., F.R.S.C.

Professor Emeritus, Toronto