## **VOLUME 17 | Supplement 1** November 2012 ISSN: 1092-8529



## journals.cambridge.org/cns

# **CNS SPECTRUMS**

EDITOR-IN-CHIEF: STEPHEN M. STAHL





https://doi.org/10.1017/S1092852912000910 Published online by Cambridge University Press

#### Editor-in-Chief

Stephen M. Stahl, Adjunct Professor of Psychiatry at the University of California San Diego, USA; Honorary Visiting Senior Fellow at the University of Cambridge, UK.

#### Field Editors

Terence Arthur Ketter, Stanford University, USA Gerard Sanacora, Yale University School of Medicine, USA Carlos A. Zarate, National Institute of Mental Health, USA

#### Deputy Editor

Thomas L. Schwartz, SUNY Upstate Medical University in Syracuse, USA

#### **Editorial Board**

Dennis S. Charney, Mount Sinai School of Medicine, USA Maria Conceição do Rosario, University of São Paulo Medical School, Brazil Jeffrey L. Cummings, Cleveland Clinic, USA Thilo Deckersbach, Harvard Medical School, USA Karen D. Ersche, University of Cambridge, UK Robert L. Findling, Case Western Reserve University, USA Mark S. George, Medical University of South Carolina, USA Eric Hollander, Albert Einstein College of Medicine and Montefiore Medical Center, USA Daphne Holt, Harvard Medical School, USA Peter B. Jones, University of Cambridge, UK Andres M. Kanner, Rush University, USA Terence Arthur Ketter, Stanford University, USA Anthony D. Loebel, New York University School of Medicine, USA Donatella Marazziti, University of Pisa, Italy Herbert Y. Meltzer, Northwestern University, USA Mario F. Mendez, University of California, Los Angeles, USA Philip Mitchell, University of New South Wales, Australia Jun Nakamura, University of Occupational and Environmental Health, Japan Humberto Nicolini, National Institutes of Health, Minister of Health, México Andrew A. Nierenberg, Harvard Medical School, USA Stefano Pallanti, University of Florence, Italy Katharine A. Phillips, Brown University, USA Diego A. Pizzagalli, Harvard Medical School, USA Mark H. Pollack, Rush University Medical Center, USA Mark H. Rapaport, Emory University, USA Irismar Reis de Oliveira, Universidade Federal da Bahia, Brazil Trevor W. Robbins, University of Cambridge, UK Peter P. Roy-Byrne, University of Washington School of Medicine, USA Barbara J. Sahakian, University of Cambridge, UK Gerard Sanacora, Yale University School of Medicine, USA Alan F. Schatzberg, Stanford University School of Medicine, USA Thomas E. Schlaepfer, University Hospital Bonn, Germany Thomas L. Schwartz, SUNY Upstate Medical University in Syracuse, USA Jordan W. Smoller, Harvard Medical School, USA Dan J. Stein, University of Cape Town (UCT), South Africa Stephen Strakowski, University of Cincinnati, USA T. Scott Stroup, Columbia University, USA Michael E. Thase. University of Pennsylvania. USA Michael Trimble, National Hospital for Neurology, Queen Square, London Madhukar H. Trivedi, University of Texas Southwestern Medical Center, USA Karen Dineen Wagner, The University of Texas Medical Branch, USA Stephen R. Wisniewski, University of Pittsburgh, USA Shigeto Yamawaki, Hiroshima University, Japan Carlos A. Zarate, Jr., National Institute of Mental Health, USA Joseph Zohar, Tel Aviv University, Israel

#### **Content Editor**

Lisa Arrington, Cambridge University Press (larrington@cambridge.org)

**Cover Image:** The image on the cover shows a hypothetical model whereby glutamate is released from an intracortical pyramidal neuron and binds to an NMDA receptor on a GABA-ergic interneuron. GABA is then released and binds to receptors on the axon of another glutamate pyramidal neuron. This inhibits the neuron, thus reducing the release of cortical glutamate. The GABA interneuron and its NMDA synapse from the first neuron to the second is the hypothetical site of glutamate dysfunction in schizophrenia.

Stahl's Essential Psychopharmacology, 4th edition, by Stephen M. Stahl Copyright © 2012 Stephen M. Stahl. Reproduced with permission.

## CNS SPECTRUMS

### **CME SUPPLEMENT: Optimizing Care for Patients** with Schizophrenia

1

10

### CONTENTS

Oral Antipsychotic Update: A Brief Review of New and Investigational Agents for the Treatment of Schizophrenia Leslie Citrome Optimizing Outcomes in Schizophrenia: Long-acting Depots and Long-term Treatment Debbi A. Morrissette and Stephen M. Stahl

https://doi.org/10.1017/S1092852912000910 Published online by Cambridge University Press

## **CNS SPECTRUMS**

## **CME** Supplement

## **Optimizing Care for Patients with Schizophrenia**

This activity is sponsored by the Neuroscience Education Institute



#### **CME** Information

#### Accreditation and Credit Designation Statements

The Neuroscience Education Institute is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The Neuroscience Education Institute designates this enduring material for a maximum of 2.5 *AMA PRA Category 1 Credits*<sup>TM</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

#### Target Audience

This activity has been developed for prescribers specializing in psychiatry. There are no prerequisites. All other health care providers interested in psychopharmacology are welcome for advanced study, especially primary care physicians, nurse practitioners, psychologists, and pharmacists.

#### **Needs Assessment**

Schizophrenia is a debilitating disorder associated with poor quality of life and huge adherence issues. It is one of the leading causes of lost years of quality of life and creates a substantial burden not only for patients but also for their families. In addition to positive psychotic symptoms, patients experience deficits in cognitive and social functioning that make it difficult for them to lead fulfilling lives without substantial help from loved ones and medical professionals. Unfortunately, schizophrenia is also a lifelong disorder, with early onset and frequent relapses.

Expectations for symptom improvement and return to or achievement of satisfactory life functioning can vary by individual patient, but in general all patients who are diagnosed, managed, and monitored appropriately have the potential to experience valuable benefit.

Unfortunately, many patients with schizophrenia do not receive treatment or receive suboptimal treatment.

#### Learning Objectives

After completing the "Oral Antipsychotic Update: A Brief Review of New and Investigational Agents for the Treatment of Schizophrenia" article, participants should be better able to:

- Implement evidence-based treatment strategies that are aligned with recovery goals set by the patient
- Make evidence-based treatment adjustments to address side effects

After completing the "Optimizing Outcomes in Schizophrenia: Long-acting Depots and Long-term Treatment" article, participants should be better able to:

- Implement evidence-based treatment strategies that are aligned with recovery goals set by the patient
- Make evidence-based treatment adjustments to address side effects
- Include strategies for monitoring and addressing adherence as part of the treatment plan for all patients

#### Date of Release/Expiration

Release date: November, 2012 CME credit expiration date: October, 2015

#### Acknowledgment of Financial Support

This activity is supported by an educational grant from Sunovion Pharmaceuticals Inc.

#### Activity Instructions

This CME activity is in the form of a printed supplement and incorporates instructional design to enhance your retention of the information and pharmacologic concepts that are being presented. You are advised to review this activity from beginning to end, and then complete the posttest and activity evaluation. The estimated time for completion of this activity is 2.5 hours.

#### **NEI Disclosure Policy**

It is the policy of the Neuroscience Education Institute to ensure balance, independence, objectivity, and scientific rigor in all its educational activities. Therefore, all individuals in a position to influence or control content development are required by NEI to disclose any financial relationships or apparent conflicts of interest. Although potential conflicts of interest are identified and resolved prior to the activity being presented, it remains for the participant to determine whether outside interests reflect a possible bias in either the exposition or the conclusions presented.

These materials have been peer reviewed to ensure the scientific accuracy and medical relevance of information presented and its independence from commercial bias. NEI takes responsibility for the content, quality, and scientific integrity of this CME activity.

#### **Disclosure Statements**

#### Authors

(for "Oral Antipsychotic Update: A Brief Review of New and Investigational Agents for the Treatment of Schizophrenia")

Leslie Citrome, MD, MPH, is a clinical professor in the department of psychiatry and behavioral sciences at New York Medical College in Valhalla. Dr. Citrome is a consultant to Alexza, Alkermes, Avanir, Bristol-Myers Squibb, Forest, Genentech, Janssen, Lilly, Lundbeck, Novartis, Noven, Otsuka, Shire, and Sunovion; is on the speakers bureaus of AstraZeneca, Bristol-Myers Squibb, Lilly, Merck, Novartis, Otsuka, Pfizer, and Sunovion; and is a stockholder of Bristol-Myers Squibb, Lilly, Merck, and Pfizer.

No writing assistance was utilized in the production of this article.

(for "Optimizing Outcomes in Schizophrenia: Long-acting Depots and Long-term Treatment")

**Debbi Ann Morrissette, PhD,** is an adjunct professor of biological sciences at California State University in San Marcos and a medical writer at the Neuroscience Education Institute in Carlsbad, CA. Dr. Morrissette has no financial relationships to disclose.

Stephen M. Stahl, MD, PhD, is an adjunct professor of psychiatry at the University of California, San Diego School of Medicine and an honorary visiting senior fellow at the University of Cambridge in the UK. Dr. Stahl receives research support from AstraZeneca, CeNeRx BioPharma, Forest, Genomind, Lilly, Merck, Neuronetics, Pamlab, Pfizer, Roche, Sunovion, Servier, Shire, Torrent, and Trovis; is a consultant to Abbott, ACADIA, AstraZeneca, Avanir, BioMarin, Bristol-Myers Squibb, CeNeRx, Forest, Genomind, GlaxoSmithKline, Johnson & Johnson, Lilly, Lundbeck, Merck, Mylan (f/k/a Dey), Neuronetics, Novartis, Noven, Ono Pharma, Orexigen, Otsuka America, Pamlab, Pfizer, RCT LOGIC, Rexahn, Roche, Servier, Shire, Sunovion, Trius, Trovis, and Valeant; is on the speakers bureaus of Arbor Scientia, AstraZeneca, Forest, Johnson & Johnson, Lilly, Merck, Pfizer, Servier, and Sunovion: and is a board member at Genomind.

#### **Content Editor**

(for "Oral Antipsychotic Update: A Brief Review of New and Investigational Agents for the Treatment of Schizophrenia")

**Debbi Ann Morrissette, PhD** (see "Authors" for disclosure information)

#### Deputy Editor

(for "Optimizing Outcomes in Schizophrenia: Long-acting Depots and Long-term Treatment")

**Thomas L. Schwartz, MD,** is an associate professor in the department of psychiatry at SUNY Upstate Medical University in Syracuse, NY. Dr. Schwartz receives research support from Bristol-Myers Squibb, Cyberonics, and Teva; is a consultant to Mylan (f/k/a Dey) and Pamlab; and was on the speakers bureau of Merck (divested).

#### CNS Spectrums Peer Review

All CME articles are peer reviewed in accordance with the strict standards of *CNS Spectrums* and in accordance with requirements and recommendations of the International Committee of Medical Journal Editors. The Editorial policies of the journal *CNS Spectrums* and peer review of all articles that appear in the journal is managed independently by Cambridge University Press and no financial relationship exists between the CME provider and Cambridge for this service.

#### Additional Peer Reviewer

**Steven S. Simring, MD, MPH,** is a clinical associate professor in the Department of Psychiatry at Columbia University College of Physicians and Surgeons, New York State Psychiatric Institute in New York City. Dr. Simring has no financial relationships to disclose.

#### Design Staff

**Nancy Muntner** is the director of medical illustrations at the Neuroscience Education Institute in Carlsbad, CA. She has no financial relationships to disclose.

#### Program Development

**Rory Daley, MPH,** is the associate director of program development at the Neuroscience Education Institute in Carlsbad, CA. He has no financial relationships to disclose.

**Steve Smith** is the president and chief operating officer at the Neuroscience Education Institute in Carlsbad, CA. He has no financial relationships to disclose.

Disclosed financial relationships with conflicts of interest have been reviewed by the Neuroscience Education Institute CME Advisory Board Chair and resolved. All faculty and planning committee members have attested that their financial relationships do not affect their ability to present well-balanced, evidence-based content for this activity.

#### Disclosure of Off-Label Use

This educational activity may include discussion of unlabeled and/or investigational uses of agents that are not currently labeled for such use by the FDA. Please consult the product prescribing information for full disclosure of labeled uses.

#### Disclaimer

Participants have an implied responsibility to use the newly acquired information from this activity to enhance patient outcomes and their own professional development. The information presented in this educational activity is not meant to serve as a guideline for patient management. Any procedures, medications, or other courses of diagnosis or treatment discussed or suggested in this educational activity should not be used by clinicians without evaluation of their patients' conditions and possible contraindications or dangers in use, review of any applicable manufacturer's product information, and comparison with recommendations of other authorities. Primary references and full prescribing information should be consulted.