Activity Preview

Pharmacogenetics and Precision Antidepressant Dosing

Activity Type

On-Demand

Overview

The available evidence for pharmacogenomic testing to guide treatment with selective serotonin reuptake inhibitors and serotonin norepinephrine reuptake inhibitors has dramatically increased over the past five years. In this presentation, general pharmacogenetic principles will be summarized and functional polymorphisms in P450 enzymes (and associated metabolizer phenotypes), the serotonin transporter promoter polymorphisms, serotonin 2A receptor genes (e.g., HT2AR) and catecholamine pathway genes (e.g., COMT) will be reviewed. Commonly tested pharmacogenetic markers are discussed with regard to studies of drug levels, efficacy and side effects. Finally, this presentation will summarize the current evidence and review the way in which variations in individual genes that may be relevant to medication metabolism or medication target engagement, can be used to guide treatment in the clinic, today.

Learning Objectives

1) Describe the relevance of pharmacokinetic genes in predicting SSRI exposure.
2) Describe the evidence for pharmacodynamic genes in guiding treatment selection in patients with depression and anxiety disorders.
3) Define and apply common pharmacogenetic concepts such as phenoconversion.

References

Jukić MM, Haslemo T, Molden E, Ingelman-Sundberg M. Impact of CYP2C19 Genotype on Escitalopram Exposure and Therapeutic Failure: A Retrospective Study Based on 2,087 Patients. *Am J Psychiatry*. 2018;175(5):463-470. doi:10.1176/appi.ajp.2017.17050550

Haslemo T, Eliasson E, Jukić MM, Ingelman-Sundberg M, Molden E. Significantly lower CYP2D6 metabolism measured as the O/N-desmethylvenlafaxine metabolic ratio in carriers of CYP2D6*41 versus CYP2D6*9 or CYP2D6*10: a study on therapeutic drug monitoring data from 1003 genotyped Scandinavian patients. *Br J Clin Pharmacol*. 2019;85(1):194-201.

Ramsey LB, Namerow LB, Bishop JR, et al. Thoughtful Clinical Use of Pharmacogenetics in Child and Adolescent Psychopharmacology [published online ahead of print, 2020 Aug 26]. *J Am Acad Child Adolesc Psychiatry*. 2020;S0890-8567(20)31357-5.

Faculty

Jeff Strawn, MD is an Associate Professor of Psychiatry and Pediatrics at the University of Cincinnati and at Cincinnati Children's Hospital. He earned a bachelor's degree in biology at the University of Kentucky and then

his M.D. from the University of Cincinnati. He completed general psychiatry residency training at the UC and a clinical fellowship in child and adolescent psychiatry at Cincinnati Children's Hospital.

His research focuses on anxiety disorders and risk factors for these conditions as well as on the pharmacologic treatment of these disorders. With his collaborators, Dr. Strawn uses functional neuroimaging, pharmacogenetics and pharmacologic approaches to identify early predictors of treatment response and medication tolerability in anxiety disorders. In his clinical practice, at Cincinnati Children's Hospital, he works with youth with anxiety and related disorders and with their families and supervises residents and fellows.

Dr. Strawn has authored 130 peer-reviewed publications and co-authored two textbooks on the treatment of children and adolescents and on contemporary psychotherapy. He is a distinguished fellow of the American Academy of Child & Adolescent Psychiatry and has received multiple awards for teaching, mentorship and research.

Disclosure

Dr. Strawn reports the following commercial interests:

Research Grant	National Institutes of Health (NICHD/NIEHS/NIMH) Yung Foundation, Otuska, Neuronetics, Allergan
Consultant	Myriad Genetics (approximately 2015)
Employee	University of Cincinnati
Speaker's Bureau	CMEology
Stock Ownership	None
Other Financial or Material Support	None

Dr. Strawn will not be discussing unapproved or investigational use of any product.

Target Audience

This activity is designed for psychiatrists and residents/fellows. Other groups may find this educational activity of interest including: medical students, other non-psychiatrist physicians including primary care, as well as psychologists, nurses, social workers, counselors and other mental health care professionals.

Estimated Time to Complete

Estimated Duration: 1 hour
Begin Date: October 5, 2020
End Date: October 5, 2021

Continuing Medical Education Credit

This activity has been planned and implemented in accordance with the accreditation and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the American Psychiatric Association (APA) and the Ohio Psychiatric Physicians Association (OPPA). The APA is accredited by the ACCME to provide continuing education for physicians.

The American Psychiatric Association designates this enduring material for a maximum of 1 *AMA PRA Category 1 Credit* ™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

How to Earn Credit

Participants who wish to earn *AMA PRA Category 1 Credit* ™ or a certificate of participation may do so by completing all sections of the course including the evaluation. After evaluating the program, course participants will be provided with an opportunity to claim hours of participation and print an official CME certificate (physicians) or certificate of participation (non-physicians) showing the completion date and hours earned.

Planner Disclosures

- Karen Jacobs, DO, Cleveland Clinic Foundation
  Reports no financial relationships with commercial interests.
- Victoria Kelly, MD, University of Toledo
  Reports no financial relationships with commercial interests.
- William Resch, DO, The Ohio State University Medical Center, Columbus
  Reports no financial relationships with commercial interests.
- Suzanne Sampang, MD, University of Cincinnati
  Reports no financial relationships with commercial interests.
- Janet Shaw, MBA, Ohio Psychiatric Physicians Association, Columbus
  Reports no financial relationships with commercial interests.
- Kristi Williams, MD, University of Toledo
  Reports no financial relationships with commercial interests.
- Elizabeth Yoder, MD, Private Practice, Columbus
  Reports no financial relationships with commercial interests.

Technical Requirements

This internet-based CME activity is best experienced using any of the following:

- The latest and 2nd latest public versions of Google Chrome, Mozilla Firefox, or Safari
- Internet Explorer 11+

This Web site requires that JavaScript and session cookies be enabled. Certain activities may require additional software to view multimedia, presentation, or printable versions of the content. These activities will be marked as such and will provide links to the required software. That software may be: Adobe Flash, Adobe Acrobat Reader, Microsoft PowerPoint, and Windows Media Player.

Optimal System Configuration:

- Browser: Google Chrome (latest and 2nd latest version), Safari (latest and 2nd latest version), Internet Explorer 11.0+, Firefox (latest and 2nd latest version), or Microsoft Edge (latest and 2nd latest version)
- Operating System: Windows versions 8.1+, Mac OS X 10.5 (Leopard) +, Android (latest and 2nd latest version), or iOS/iPad OS (latest and 2nd latest version)
- Internet Connection: 1 Mbps or higher

Minimum Requirements:

- *Windows PC:* Windows 8.1 or higher; 1 GB (for 32-bit)/2 GB (for 64-bit) or higher RAM; Microsoft DirectX 9 graphics device with WDDM driver; audio playback with speakers for programs with video content
- *Macintosh:* Mac OS X 10.5 or higher with latest updates installed; Intel, PowerPC G5, or PowerPC G4 (867MHz or faster) processor; 512 MB or higher RAM; audio playback with speakers for programs with video content

For assistance: Contact oppa@oppa.org for questions about this activity | Contact learningcenter@psych.org for technical assistance.