Session: Pharmacogenomics 101: From Research to Clinical Practice
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Presentation:

Integration of Genomics into Therapy Selection

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Biography

Amber L. Beitelshees, PharmD, MPH

After earning her Pharm.D. from the University of Florida, Amber completed a Pharmacy Practice Residency at the University of Illinois at Chicago. She then returned to the University of Florida to complete a 3-year postdoctoral fellowship in Cardiovascular Pharmacogenomics under the mentorship of Dr. Julie Johnson. In August of 2005, Amber joined the faculty of Washington University School of Medicine as Research Assistant Professor in the Cardiovascular Division. Her research is aimed at understanding how variability in genes related to cardiac metabolism impact response to commonly used cardiovascular medications, such as ACE inhibitors, angiotensin receptor blockers, and β-blockers.

Presentation Outline

Integration of genomics into clinical practice

I. Overview of pharmacogenomics
II. Primer/Terminology
III. Warfarin example
IV. Bucindolol example
V. Future considerations

Abstract

Integration Of Genomics Into Clinical Practice

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Sequencing of the human genome affords a new tool for understanding genetic determinants of drug response. This information, if used to its fullest potential, can lead health care professionals to make wiser medications choices; and thus, provide more rational therapeutics. Pharmacogenetics-enhanced therapy might facilitate providing the right drugs to the right patients, rather than prescribing through the currently empirical trial and error approach. Pharmacogenomics could be important for conserving valuable healthcare resources and

reducing the heterogeneity of drug efficacy and toxicity. Health care professionals must have an understanding of the tools used to generate genomic data, and more importantly be able to translate pharmacogenetic information into clinical practice through interpretation of scientific literature, interpretation of test results, and counseling patients regarding genomic medicine. This information will likely be available for making therapeutic decisions in the not so distant future for agents such as warfarin or bucindolol.

Learning Objectives:

1. Describe the process of DNA mapping.
2. Write the definitions of gene, SNPs, RFLP, and linkage map.
3. List at least 3 effects pharmacogenomics may have on pharmacy practice.

Self-Assessment Questions: True or False:

1. A polymorphism is variation in the genetic code that occurs in at least 1% of the population.
2. Patients genotyped for CYP2C9 and VKORC1 to determine their warfarin starting dose will not require therapeutic monitoring of their INR.
3. Pharmacists are important to successfully incorporating genomics into pharmacotherapy selection because of their unique clinical, molecular, and pharmacological knowledge base.

Answers

1 (T), 2 (F), 3 (T)

Bibliography

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Slides: none provided