



SAROJINI NAIDU VANITA PHARMACY MAHA VIDYALAYA

(Sponsored by the Exhibition Society), Tarnaka, Secunderabad

Affiliated to Osmania University, Approved by AICTE & PCI

ISO 9001: 2015 Certified Institution, NBA Accredited B. Pharmacy Course

Report on

Pharmacogenetics of Metabolic Diseases

Date: December 21, 2024

Time: 2:00 PM

Venue: SNVPMV Auditorium

Organized by: Sarojini Naidu Vanita Pharmacy Maha Vidyalaya

Guest Speaker: Dr. K. Rajendra Rao, Scientist - F & HOD- Animal Facility, ICMR-NIN Tarnaka

Coordinated by: Dr. T. Venu, HOD, Department of Pharmacology, SNVPMV

1. Introduction

On December 21, 2024, Sarojini Naidu Vanita Pharmacy Maha Vidyalaya (SNVPMV) hosted a distinguished guest lecture on the topic of Pharmacogenetics of Metabolic Diseases. The lecture was delivered by Dr. K. Rajendra Rao, a renowned scientist and Head of the Animal Facility at the ICMR-National Institute of Nutrition (NIN), Tarnaka. The event was coordinated by Dr. T. Venu, Head of the Department of Pharmacology at SNVPMV, and was attended by faculty, students, and researchers.

2. Objective of the Lecture

The primary aim of the guest lecture was to enlighten attendees on the emerging field of pharmacogenetics and its applications in the treatment and management of metabolic diseases which is a part of course curriculum of M. Pharm I semester and Pharm. D. V year. Dr. Rao discussed the role of genetic variations in the metabolism of drugs, providing insights into personalized medicine, particularly in addressing complex metabolic disorders.

3. Key Highlights of the Lecture

Dr. K. Rajendra Rao initiated his lecture by explaining the basic principles of pharmacogenetics, emphasizing its importance in understanding how genetic differences



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among individuals can influence drug response and efficacy. The lecture was divided into the following key segments:

Overview of Pharmacogenetics

Dr. Rao defined pharmacogenetics as the study of genetic factors that influence individual responses to medications. He discussed how genetic variations, such as polymorphisms in drug-metabolizing enzymes, can lead to altered drug metabolism, affecting therapeutic outcomes.

Pharmacogenetics in Metabolic Diseases

Dr. Rao focused on how pharmacogenetics is applied to metabolic diseases, such as diabetes, obesity, and lipid metabolism disorders. He emphasized that metabolic diseases often involve complex genetic and environmental interactions, making them challenging to treat effectively with standard therapies. He highlighted how pharmacogenetics can help identify patients who may benefit from personalized drug regimens based on their genetic profiles.

Genetic Variants and Drug Metabolism

One of the key points discussed was the influence of genetic variants in enzymes such as CYP450, which play a critical role in the metabolism of various drugs. Dr. Rao explained how certain genetic mutations can lead to poor or rapid metabolism of drugs, resulting in either therapeutic failure or toxicity.

Case Studies and Current Research

Dr. Rao presented several case studies where pharmacogenetic testing helped optimize drug therapies for patients with metabolic diseases. He also shared ongoing research from the ICMR-NIN in the area of pharmacogenetics, including studies on Indian populations, to identify genetic markers associated with specific drug responses.

Challenges in Pharmacogenetics

Dr. Rao addressed the challenges in applying pharmacogenetics in clinical practice, particularly the need for large-scale population studies, the cost of genetic testing, and the ethical considerations related to genetic data.



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Future Directions

Concluding the lecture, Dr. Rao discussed the future of pharmacogenetics in metabolic diseases, emphasizing the potential of precision medicine to improve therapeutic outcomes. He stressed the importance of integrating pharmacogenetics into routine clinical practice, which could lead to more efficient and effective treatment strategies.

4. Audience Engagement

The lecture was highly interactive, with several questions from the audience related to the application of pharmacogenetics in the Indian context. Dr. Rao responded thoughtfully, highlighting the need for more research on ethnic and genetic diversity in drug responses. The audience was particularly interested in how pharmacogenetics could shape the future of drug development and treatment for metabolic diseases, given the increasing prevalence of conditions like diabetes and cardiovascular diseases.

5. Conclusion

The guest lecture by Dr. K. Rajendra Rao on Pharmacogenetics of Metabolic Diseases was an enriching experience for all attendees. Dr. Rao provided valuable insights into how pharmacogenetics is transforming the landscape of drug therapy, especially in the management of metabolic disorders. His expertise and the depth of knowledge he shared highlighted the importance of personalized medicine and genetic research in improving patient outcomes.

The lecture concluded with a vote of thanks by Dr. T. Venu, who expressed appreciation for Dr. Rao's detailed presentation and the valuable information shared during the session.

6. Acknowledgements

The event was successfully coordinated by the Department of Pharmacology, led by Dr. T. Venu. Special thanks are extended to Dr. K. Rajendra Rao for his insightful lecture, the faculty, and the Mpharm pharmacology & PharmD students for their active participation, and the technical team for ensuring a smooth execution of the event.



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