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Pharmacogenomics of Metformin

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Metformin is a first-line therapy for type 2 Diabetes mellitus and is one of the most commonly prescribed drugs worldwide. As a biguanide agent, metformin lowers both basal and postprandial plasma glucose (PPG). Metformin works by inhibiting the production of hepatic glucose, reducing intestinal glucose absorption, and improving glucose uptake and utilization. However, the glycemic response to metformin is quite variable. Some patients respond extremely well, whereas others show no benefit. These variations are mainly due to transporter mediated uptake and efflux of metformin. The role for variation in the genes encoding organic cation transporters is inconsistent and is responsible for variation in the efficacy of drug. Pharmacogenomics is the study of identification and analysis of genomic variations that affect the response of a drug. It is estimated that about 95% of the variability in drug response is due to genetic differences; accounting for these differences then would be highly beneficial, not only for the health care industry, but for patients themselves, decreasing the burden of treatment failures and adverse events on society. The purpose of this study is to explain how pharmacogenomics aims to achieve the best therapeutic outcome based on genomic insights, and to ultimately lead to the development of "personalized medicine" for type2 diabetes mellitus patients.

Biography

Sirisha Annavarapu is currently pursuing her post graduation (MD) from Dr NTR University of Health Sciences and has completed MBBS from Chalameda Ananda Rao Institute of Medical Sciences. She has completed various preclinical and clinical studies like antianxiety property of zinc oxide and presented a poster in national conference

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