Seminar 1

Using Personalized Medicine in Diabetes: From Diagnosis to Treatment

Soheila zangoie

Institute of Biochemistry and Biophysics, University of Tehran, Tehran, Iran

Abstract:

Diabetes is a chronic metabolic disorder characterized by high blood sugar levels resulting from a deficiency in insulin production or the body's inability to use insulin effectively. Traditional diabetes treatment has largely been based on a **one-size-fits-all** approach, but recent advances in personalized medicine have shown promise in improving diabetes management. Monogenic diabetes, such as maturity-onset diabetes of the young (MODY) and neonatal diabetes, are caused by mutations in a single gene and are relatively rare forms of diabetes. However, these forms of diabetes provide a unique opportunity for personalized medicine approaches, as genetic testing can identify the specific gene mutation causing the condition and inform targeted treatment strategies. Personalized medicine approaches for monogenic diabetes may include precision dosing of insulin, use of alternative medications, and lifestyle interventions tailored to the individual's specific genetic profile. By individualizing treatment based on genetic and other clinical factors, personalized medicine approaches have the potential to improve diabetes control and reduce the risk of complications. However, there are still many challenges in implementing personalized medicine in diabetes management,

including the costs and availability of genetic testing, the need for specialized expertise in interpreting genetic results, and the need for further research to validate the effectiveness of personalized approaches.

Keywords: Diabetes, personalized medicine, monogenic diabetes, MODY