International Conference on

METABOLOMICS AND DIABETOLOGY

May 23-24, 2018 | New York, USA

Beat the diabetes with novel and future therapies for T1DM

Saeed Akhter Pak Diabetes Center, Pakistan

type 1 diabetes (T1D) still remains a big mystery disease of the 21st century. It has posed a big challenge for all the stakeholders in its management. As the incidence and prevalence of diabetes is increasing worldwide so the complications and cost related to diabetes are increasing. Researchers are still unable to completely understand the aetiopathological nature of this disease. Treatment of T1D was revolutionized after the discovery of Insulin. Exogenous insulin replacement therapy is being used effectively since then, but it does not provide a cure. There are many other treatment options, which are being investigated extensively all over the world in an effort to find a cure. Limitations of insulin therapy have led to search for strategies targeting beta cell replacement therapies. Plasticity towards beta cells has been revealed in clinical trials. Stem cells (SC) are colonogenic cells and have been found capable of both self-renewal and multilineage differentiation. SCs are unspecialized cell but has a potential to differentiate into specialized cells. In SC engineering, exploring the potential of embryonic and adult stem cells or induced pluripotent stem cells to differentiate into insulin producing beta cells, if given the specific growth factors, signaling molecules and transcription factors has demonstrated encouraging results in rodent models. Reprogramming or genetic modification of other cell types such as gut and liver cells in the production of insulin producing beta cells are one of the possibility which could be utilized in human beings after the encouraging results obtained in rodent models These properties now offer a great scope and potential for their clinical use and are being explored further. Vaccine for T1D based on the rationale that reestablishment of immune tolerance to diabetes specific self-antigens has been seen as a step forward in in finding the cure. Artificial pancreas which will work just like a normal functioning pancreas by using automatic techniques is another option and is seen as a mechanical cure by many researchers is being tested in many research centers and is in its final stages of developments. Studies on diabetic animals have proved useful and have helped to understand the molecular and pathophysiological events leading to the underlying causes of the T1D, with an emphasis on the current, novel and future techniques and their potential for clinical use in future.

Biography

Completed MBBS from Pakistan at the age of 26 years. And MSc applied Envi. Sci. from University of Punjab, Pakistan and MSc Diabetes Care and Management from the Glasgow Caledonian University, Scotland United Kingdom. Presently working as Director PAK DIABETES CENTER in Pakistan

saeedaone@gmail.com

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