

Would it be advantageous utilizing beta cell therapies over immunotherapies for avoidance of type 1 diabetes - A systematic Review on the role of beta cells in etiopathogenesis of type 1 diabetes along with treatments targeting beta cells or combination therapy would be better



Kulvinder Kochar Kaur

Dr Kulvinder Kaur Centre for Human Reproduction, India

Abstract

Earlier we had reviewed various aspects of Type 1 Diabetes (T1D) (its etiopathogenesis, various immunotherapies used and how we could try to obviate the need of insulin, role of empagliflozin addition, role of extracellular vesicles(ECV's) in treating complications associated with T1D, role of gut microbiota and early life feeding, genes responsible (unpublished), epigenetics in Diabetic Kidney Disease(DKD), The etiopathogenesis of T1D despite the earlier belief that it represents an autoimmune diseases with continuing autoimmune modulated damage of pancreatic β cells. Thus Here we conducted a systematic review utilizing search engine pubmed, Google scholar; web of science; embase; Cochrane review library utilizing the MeSH terms like; Type 1 Diabetes(T1D); beta cell in etiopathogenesis of T1D; Immunotherapies; role of Unfolded proteins response(UPR);role of senescent β cells; Role of Type 1 Interferon; DNA methylation;PDL1; Little insulin generation by α cells besides glucagon; other endocriner cells of pancreas; Role of autophagy; other mechanisms like apoptosis; necrosis in β cell demise; endoplasmic reticulum (ER)stress; Terminal UPR; Advanced UPR; EM alterations in mitochondria of islet β cell; Endotype; heterogeneity in T1D; of latent autoimmune Diabetes in Adults(LADA); Immunotherapies; β cell therapies; combination of 2 therapies; DDR; Senolytics; Bcl2; Bcl -XL; circulating cell free DNA (cfDNA) ; Histone mimic suppression of inflammation; BET Inhibitors(Molibresib); Epigenetics modulation of macrophages and β cells; Tauroursodeoxycholic acid(TUDCA), Verapamil(TXNIP inhibitor) Imatinib (IRE1 α - ABL inhibitor from 1950 to 2021 till date. We found a total of 300 articles out of which we selected 135 articles for this review. No meta-analysis was done. Thus we have discussed the different pathways that influence the β cell impairments .Various etiologies like UPR ,SASP are reviewed along with pathways for β cell targeted therapies like Verapamil([thioredoxin -interacting protein(TXNIP)] inhibitor) Imatinib (IRE1 α [inositol requiring enzyme -1 alpha(IRE1 α)],- Abelson tyrosine protein kinase (ABL), BET Inhibitors(Molibresib); Tauroursodeoxycholic acid(TUDCA).Further the existing queries that still need to be resolved are discussed. This was we might be able to shorten the gap in T1D etiology as well as maximize the potential of these therapies or existing immunotherapies.

Key Words: Type 1 Diabetes; Pancreatic β cells; UPR; SASP; Immunotherapy; Apoptosis

Biography

Kulvinder Kochar Kaur is the scientific director of DR Kulvinder Kaur Centre For Human Reproduction, Jalandhar, Punjab, India, where she manages the complicated cases of infertility. She graduated from LHMC Delhi in 1980 topping in medicine in all 3 medical colleges thereby getting the DR Devi Chand Gold medal from the late PM Smt Indira Gandhi and also topped in all the MBBS subjects prior to that eg: anatomy, pathology, biochem etc making her basics sound and later she managed the endocrine clinic in PGI Chandigarh during her MD days .Following that she reported the 40th world case hydrometrocolpos working in Saudi Arabia and has been working in the field of neuroendocrinology of obesity. GnRH control along with role of kisspeptins, prokineticins in human reproduction, AIDS and Cancer -during this period she managed to successfully treat the first case of no gestational choriocarcinoma of uterine body in a young girl medically thereby preserving her fertility-the first case in world literature of its kind.



5th Global experts meet on Advanced Technologies in Diabetes Research and Therapy | July 13, 2021

Citation: Kulvinder Kochar Kaur, Would it be advantageous utilizing beta cell therapies over immunotherapies for avoidance of type 1 diabetes - A systematic Review on the role of beta cells in etiopathogenesis of type 1 diabetes along with treatments targeting beta cells or combination therapy would be better, Diabetes Meet 2021, 5th Global experts meet on Advanced Technologies in Diabetes Research and Therapy, July 13, 2021, 03