Global rise of Type-2 Diabetes Mellitus (T2DM) and its complications, primarily Coronary Artery Disease (CAD) are enormous. Application of genetic knowledge of T2DM polymorphisms to clinical use is limited. Genetic markers of T2DM based on Genome Wide Association Scan (GWAS) findings yield inconclusive results. The burden of CAD in T2DM is high, increased levels of Low Density Lipoprotein cholesterol remains prevalent. This paper evaluates the genetic variants of Low Density Lipoprotein receptor (LDLR), review inheritable changes in gene expression caused by epigenetic regulations and discuss newer therapeutic options. For the purpose of literature review, systematic search was conducted with the use of Medline and Cochrane library. Data collected from 2013 through to 2018 published in English alone was analysed. The role of LDLR polymorphisms in T2DM is discussed. Analysis of LDLR rs688 TT genotype and T alleles associated are compared with similar studies and linked to dyslipidaemia in T2DM. Epigenetic changes that are reported, following diet and exercise, are reviewed. Further, the diabetogenic effect of statins on T2DM and emerging treatment options are reviewed. The research identifies uncommon variants, structural variation and gene environment interactions of LDLR that contribute to CAD in T2DM. LDLR rs688 TT genotype and T alleles indicate susceptibility to CAD in Indians within a small study. Individual statins differ with respect to their diabetogenic property. Underlying genetic mutation of LDLR can used as a predictor of response. LDLR polymorphism can be approached in a holistic manner, considering newer treatments for dyslipidaemia of T2DM, applying genetically guided personalized therapies.

Biography

Shaheena Banu has completed her PhD in 2005 from Rajiv Gandhi University of Health Sciences, India and postdoctoral studies at Jayadeva Institute of Cardiovascular Sciences and Research Bangalore. She is currently Senior Lecturer at Aspire2 International, a category-1 PTE of New Zealand. She has published more than 25 papers in reputed journals and has been serving as Guest editor for special issue of Bentham Publications “Endocrine, Metabolic & Immune Disorders-Drug Targets with Impact Factor 1.897).