Type 2 diabetes mellitus (T2DM) is the most common form of diabetes, accounting for approximately 90% of cases, affecting 10-20% of those over 45 years of age in many developed countries. Worldwide incidence of diabetes in the year 2014 was around 386.7 million and the predicted prevalence in the year 2035 is 591.9 million. Respective figures for India are 66.8 million and 109 million, earning it the epithet of Diabetes Capital of the world. Within India Hyderabad earns that dubious distinction.

Though insulin resistance and progressive pancreatic β-cell dysfunction have been recognized as the two fundamental features in the pathogenesis of T2DM, the specific molecular defects affecting insulin sensitivity and or β-cell function remain largely undefined. While the genomewide-scans have recognized numerous potential chromosomal susceptibility regions across different human populations, finding a causative gene for T2DM has remained vague. Following a combined strategy of positional cloning and a newly developed statistical method of partitioning linkage, these investigators identified a novel gene, Calpain 10 (CAPN10, as a putative T2DM susceptibility gene in this region (Horikawa et al. 2000). Polymorphisms in this gene (SNP-43, SNP-44, del ins-19, and SNP-63), all located in intronic sequences, were found to be involved in increased risk of the disease.

Although, Parashar and associates studied prevalence of diabetes mellitus among bank employees of Meerut district in India; ASSOCHAM did a survey on the prevalence of diabetes among private employees in India; and, Cassell and associates researched on haplo type combinations of Calpain 10 gene polymorphisms association with increased risk of impaired glucose tolerance and T2DM in South Indians - no one has studied the prevalence of T2DM exclusively among ITeS employees in Hyderabad and much less the association of Calpain 10 gene among them. Hence the present study has been undertaken to fill the gap.

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I know from the beginning that pursuing doctoral study is not an easy way but involves challenging task. Throughout this long journey, I have gained a lot by learning to persevere despite hardship. I am grateful to many for the support and contribution during this journey. I would never have successfully completed this thesis without the support of numerous people for whom I put on record my thanks.

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