Evaluation of outcome of acoustic reflex tests in patients with Type 2 diabetes mellitus - a cross sectional study

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INTRODUCTION: Diabetes Mellitus (DM) is a long-standing metabolic disorder characterised by hyperglycaemia due to insulin resistance or inadequate insulin or both. There are two types of DM. Type1 is Insulin dependent (IDDM) and type 2 is non-insulin dependent (NIDDM). Type 2 diabetes mellitus (T2DM) may induce microvascular and macrovascular changes like thickening of the basement membranes of capillaries, loss of outer hair cells (OHCs), loss of inner hair cells, atrophy of spiral ganglion cells, oedematous changes of the intermediate cells and atrophy of marginal cells in the stria vascularis[1]. It may also cause neuropathic changes which may affect the auditory pathway and lead to hearing loss. The association of hearing loss with DM, however, is still controversial.Acoustic reflex (AR) measurement is a form of measurement provided by the contraction of the stapedius muscle. The innervation of the stapes muscle is provided by the stapedial branch of the facial nerve. The acoustic reflex develops in response to the acoustic stimulus that is 70-90 decibels (dB) over the threshold of hearing. When a sound stimulus of sufficient intensity comes to the ear, stapes muscle responses by contracting. Normal operation of the afferent and efferent reflex arcs is necessary for the formation of the acoustic reflex. In this way, the inner ear is protected from high intensity sounds. No matter which ear the stimulus comes from, acoustic reflex is always bilateral[2].Study conducted on these two topics is important to establish a relationship between T2DM and AR in order to ensure proper health measures are taken for early identification and prevention of complications[3].

AIM : To evaluate the outcome ipsilateral and contralateral AR parameters and reflex decay tests (RDT) in patients with T2DM.1. To determine average AR parameters (ipsilateral and contralateral) & RDT in patients with T2DM and compare it with non-diabetic subjects. 2. To study relationship between average AR parameters, RDT and duration of T2DM. 3. To study relationship between average AR parameters, RDT and control of T2DM using HbA1c levels.

STUDY DESIGN: Analytical Cross-sectional study including the patients with T2 DM and without DM.