

3937446 RACD/M : MAJOR : COMMUNICATION DISORDERS ; M.A.
(COMMUNICATION DISORDERS)

KEY WORDS : DIABETES MELLITUS / ELECTRONYSTAGMOGRAPHY
CHITTIMA SRISOMPHON : ELECTRONYSTAGMOGRAPHIC
FINDINGS IN DIABETES MELLITUS PATIENTS WITH AND THOSE
WITHOUT DIZZINESS OR VERTIGO. THESIS ADVISORS: CHANCHAI
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Vertigo and dizziness are common in diabetes mellitus (DM), influencing the balance system as a result of metabolic or focal pathology in the central or peripheral nervous system. Although a high prevalence of abnormal electronystagmography (ENG) was reported in diabetic patients without vertigo, the results were difficult to interpret as being caused either by vestibular dysfunction or diabetes itself. The purposes of this study were to evaluate ENG findings in diabetic patients compared to those in an age-matched normal control group, and ENG findings in symptomatic DM compared to those in asymptomatic DM. The relationship between ENG findings and clinical diabetic parameters was also studied.

ENG testings were performed in a sequence starting from spontaneous, gaze, saccade, smooth pursuit, optokinetic, positional, and caloric test to investigate 15 symptomatic DM of mean age 57.33 years, 25 asymptomatic DM of mean age 52.28 years, and 20 normal control group of mean age 49.6 years. The results showed statistically significant differences in the central eye control between the whole diabetic group and the normal control group, while the results showed statistically nonsignificant in positional and caloric test between these 2 groups. The central eye control, caloric and the positional test differences were statistically nonsignificant between the symptomatic and asymptomatic DM. Both HbA1C and FBS levels showed a statistically significant negative correlation ($r = -0.41, -0.35$) only with random saccade accuracy at the stimulus levels of 6 to 32 deg in DM. In asymptomatic DM, a statistically significant positive correlation ($r = 0.53$) was found between HbA1C and the right ear caloric response while in symptomatic DM, a statistically significant positive correlation ($r = 0.89$) was found between HbA1C and saccade latency at a stimulus of 30 deg. No relationship between ENG findings and diabetic complications or duration of DM was present in this study.

The results of this study confirmed that central eye movement dysfunction in DM was clearly more severe than in control subjects. The saccade test is probably the most useful ENG parameters to detect abnormal central eye control in DM with poor metabolic control. In addition, peripheral vestibular function in DM was similar to that of control subjects, and those in symptomatic DM was similar to that of asymptomatic DM. Metabolic control has been suggested to be one of the most important factors in causing vestibular dysfunction in all DM. However, this parameter showed a weak relationship with abnormal ENG findings in symptomatic and asymptomatic DM and need further investigation.