

3<sup>rd</sup> International Conference on

## Endocrinology

## November 02-04, 2015 Atlanta, USA

## Asymmetry of visual dependence for spatial orientation in diabetic patients: Can it be predicted by HbA1c levels?

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**Aim:** This study aims to assess whether glycemic control (HbA1c levels) in Type 2 diabetes affects weighting of visual references during visuo-vestibular conflicts. Diabetic patients were divided into good glycemic control (HbA1c<7% (53 mmol/mol); n=24) and poor glycemic control (HbA1c $\geq$ 7%; n=25) sub-groups. Alignment errors on the Computerized Rod-and-Frame Test (CRFT) were compared among the two diabetic subgroups and healthy controls (n=29).

**Objectives:** Differences in frameless Subjective Visual Vertical (SVV) were non-significant between all groups. During frame tilts, SVV errors (Comb18) were significantly larger in the good glycemic group (P<0.01) only in comparison to the healthy group with no difference with the poor glycemic group. The good glycemic group had the highest asymmetry of visual dependence  $(2.70^{\circ}\pm1.51^{\circ})$  with all three groups differing significantly on that parameter: Healthy controls  $(0.90^{\circ}\pm0.92^{\circ})$ , and poor glycemic group  $(1.68^{\circ}\pm1.13^{\circ})$ . There was no correlation between HbA1c levels and visual dependence or asymmetry index but a significant positive correlation existed between Comb18 and asymmetry index only in the good glycemic control group (r=0.55, p=0.007).

**Conclusion:** We conclude that the increased visual dependence in diabetics with good glycemic control may be due to increased otolithic asymmetry. This may suggest that the effects of diabetes on vestibular compensatory mechanisms may be profound even in diabetics with good glycemic control. However, since HbA1c levels are not associated with the increased visual dependence, it seems that other glycemic disorders such as long-term glucose variability may also be implicated.

## Biography

Rima Abdul Razzak has completed her PhD from the University of Southampton, and carried out one year Post-doctoral work at the same university. She is currently an Assistant Professor in the Physiology Department at the Arabian Gulf University in Bahrain. She has published around 12 papers in reputed journals. She is currently leading a project for implementing e-learning methods into medical education at AGU.

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