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Extended Abstract
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ENDOCRINOLOGY 2020: Comparison of the tear osmolarity test vs. Other common diagnostic tests for dry eye disease in diabetic patients.

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Introduction:

Diabetes is a weakening wellbeing condition which is required to arrive at plague extents in the following 20 years. As per the World Health Organization, 108m individuals around the globe had diabetes in 1980; by 2014 that figure was 422m. After three years in 2017, 425m individuals overall were living with the ailment and this figure is relied upon to surpass a stunning 629m by 2045.

There are two sorts of diabetes: individuals with type 1 can't create the hormone insulin (from the pancreas) which is engaged with controlling glucose levels. Individuals with type 2 diabetes don't deliver enough insulin or their bodies are impervious to it. Accordingly, the two kinds can prompt high glucose levels, which increment the danger of diabetes difficulties.

One is retinal malady (retinopathy), the main source of visual impairment in individuals of working age in created nations. On the off chance that glucose levels are continually high in an individual, this can harm their veins. That implies the bloodstream can be obstructed or blocked and when that occurs in the veins serving the eye, the retina can't work appropriately, prompting vision issues.

Be that as it may, our most recent exploration uncovers that dry eye malady, another eye condition that gets substantially less consideration, should cause worry for all individuals with diabetes – particularly those with type 2 – with regards to intensifying sight.

Individuals with diabetes are bound to experience the ill effects of DED. Be that as it may, this condition is frequently neglected during diabetic ophthalmic appraisals which focus on retinal infection screening.

Dry Eye Disease(DED) influences roughly 15% to 30% of those matured more than 50. Albeit "dry eye" seems like a generally harmless condition, indications can be upsetting, including obscured vision, torment, consuming, irritation, coarseness, dryness, corneal ulcers, and in extreme cases, visual impairment. What's more, since acceptable vision is so inherently identified with our everyday lives, DED can influence individuals' capacity to drive, read, stare at the TV and use cell phones and PCs.

This can have repercussions on the general personal satisfaction, with DED harming passionate prosperity, work environment efficiency, and other everyday exercises. DED is known to have a comparable antagonistic impact on personal satisfaction as much as that for individuals living with angina, hip breaks, or those experiencing kidney dialysis.

In spite of this, DED isn't routinely surveyed in those with diabetes since retinal illness checking is viewed as an all the more squeezing concern, thus dry eye regularly goes untreated. To intensify the issue, there has been little exploration researching the impacts of diabetes-related DED on the personal satisfaction of patients. There has likewise been little examination of DED in type 1 and 2 diabetes, which have totally different causes.

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In the long haul, the extra screening cost could exceed the loss of profitability and produce monetary advantages as improved by and large prosperity and eye wellbeing. An ongoing report demonstrated a solid connection between sadness and dry eye indications. Assuaging DED could improve the personal satisfaction of type 2 patients – and with more extensive social, physical and mental advantages, it ought to be a need for eyecare experts and patients the same.

Aims and objectives: The purpose of the present work was to determine the diagnostic performance of tear osmolarity test; used to diagnose dry eye disease (DED) in type 2 diabetic participants using tear lab osmolarity system as the reference standard and to compare it with the other diagnostic tests (index tests) already in use, specifically Ocular Surface Disease Index (OSDI) questionnaire, Schirmer I test, TFBUT, Rose Bengal and fluorescein staining.

Materials and methods: In this study 267 people with type 2 diabetes were recrutiated. Tear osmolarity as gold standard by 308 mOsm/L cutoff was used to diagnose dry eye disease. The other diagnostic tests were also performed: Ocular Surface Disease Index (OSDI) questionnaire, Tear Film Break up Time (TFBUT), Schirmer I test, Rose Bengal and Fluorescein staining. The results of these index tests were compared to the gold standard measurement.

Results: Dry eye disease prevalence by the tear osmolarity test was 27.9% with female prodominancy. This prevalence via the other common diagnostic tests were: OSDI (17.5%), Schirmer I test (32.5%), TFBUT (41.6%), Rose Bengal (10.8%), and Fluorescein staining (4.3%). TFBUT had the highest detection rate to diagnose DED. No significant correlation was detected between tear osmolarity and other diagnostic tests. By Fluorescein staining had the highest specificity (96.8%). With the cutoff score >12, the positive likelihood ratio for the OSDI questionnaire was the highest (1.78). The sensitivity was poor for all common diagnostic tests. ROC curve analysis could not determine optimal cut offs for the common diagnostic tests.

Conclusion: By comparison of the gold standard; other diagnostic tests underestimate the presence of dry eye disease in diabetic participants. Moreover, they could not differentiate tear hyperosmolarity from normal. Tear osmolarity could be considered as the best single test for detection of dry eye disease in daibetic patients.

Keywords: Diabetes Mellitus, Dry Eye Disease, Diagnostic Accuracy Study, STARD