

# Ocular Surface Analyser- Non-invasive tool for assessment of dry eye in Pediatric VKC

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## Introduction

The ocular surface contains the membrane, mucosa, eyelids AND lacrimal glands and any disorder in these structures will be classified as an ocular surface disorder (OSD). Although the prevalence of OSD is sort of high, sadly, cases typically go unknown or undertreated, because of an absence of understanding of symptoms, and inaccurate analysis. As folks live longer, these disorders are getting a lot of current, however awareness concerning them is sort of restricted.

OSD includes conditions like Dry disease (DED), redness and sebaceous gland pathology (MDG), allergic eye diseases (AED), chemical and thermal burns and then on. Ocular surface diseases will severely have an effect on sightedness and quality of life, and in severe cases, cause sightlessness. The mode of presentation similarly because the severity varies in numerous populations and this issue can concentrate on the presentation of OSD in South Asia. Ocular surface squamous pathologic process (OSSN) has A calculable incidence within the u. s. of zero.03 per 100000 persons.<sup>2</sup> Higher incidences are rumoured in alternative components of the planet with a lot of sun exposure, with AN calculable incidence of one.9 per 100000 persons in Australia<sup>3</sup> and three.5 per 100000 persons in African country.<sup>4</sup> it's the foremost common, non-pigmented ocular surface growth. The organ systems area unit primarily involutions from and specializations of the surface epithelial tissue. Communication on these epithelia happens through gap junctions and cytokines.<sup>2-4</sup> third, all regions of the ocular surface epithelia manufacture elements of the refractive tear film; the membrane and mucosa epithelia manufacture hydrophilic mucins that hold tears onto the surface of the eye; the lacrimal and accent lacrimal glands secrete water and a number of protecting proteins; the sebaceous gland provides the superficial tear lipid layer that stops tear evaporation. The nasolacrimal animal tissue system adsorbs tear elements and is believed to, through its cavernous system, control/regulate tear outflow, serving to to keep up the acceptable tear level, a fine balance between secretion and outflow.<sup>5</sup> The functions of the varied regions of the continual epithelia and also the protective fold blink area unit integrated by the nervous, endocrine, circulatory and immune systems, and area unit supported by the animal tissue with its resident cells and blood vessels.

A unit within the Ocular Surface System has been termed "The Lacrimal Functional Unit."<sup>6</sup> "The Lacrimal Functional Unit is composed of the lacrimal glands (both main and accessory),

the ocular surface and the interconnecting innervation." This term emphasizes the interplay between the lacrimal gland, the ocular surface, narrowly defined as the corneal and conjunctival epithelia, and the nervous system. The Ocular Surface System is a broader concept in that it recognizes contributions to the tear film of all the regions of the ocular surface epithelia, incorporates the lids and nasolacrimal duct, and recognizes the integrative functions of the endocrine, immune and vascular systems.

## Abstract & Introduction

Vernal Keratoconjunctivitis (VKC) is the most common and severe form of ocular allergy seen in pediatric patients. If left untreated it can lead to sight threatening complications like corneal ulcer and limbal stem cell deficiency. It is also often associated with dry eyes, which is commonly neglected in children as they cannot express their complaints. We hesitate in performing the dry eye tests like tear film break up time and Schirmer's test in children owing to their invasive nature. Ocular surface analyser (OSA) is a non-invasive tool which is used in adults to assess dry eye status. The purpose of this research is to present our results of evaluation of OSA as a non-invasive alternative for assessment of dry eyes in pediatric VKC.

## Method

Prospective pilot study. The clinical parameters recorded were Bonini clinical grading, corneal fluorescein staining, tear-film break up time (TBUT) and schirmer's II test. The OSA parameters recorded were noninvasive TBUT (NiBUT), meibomian gland (MG) loss, tear meniscus height and lipid layer type. The OSA and clinical parameters were correlated with the modified ocular surface disease index (OSDI) symptom scores.

## Result

30 children (8.4yrs, 5-15 years) with VKC showed an average TBUT of  $10 \pm 5$  secs and NIBUT of  $7 \pm 2$  secs. The mean OSDI score was  $35 \pm 14$  (maximum possible score-64). None of the clinical parameters correlated with OSDI scores. Among the OSA parameters, upper lid MG loss showed a positive correlation with OSDI scores ( $p=0.039$ ).

## Conclusion

Conclusions: OSA may be used as an alternative tool for assessment of dry eyes in children. MG gland loss correlated with symptoms.