ISSN: 2320-5407

International Journal of Advanced Research

Publisher's Name: Jana Publication and Research LLP

www.journalijar.com

REVIEWER'S REPORT

Manuscript No.: IJAR-50460 Date: 01-03-2025

Title: An Innovative Meibography Approach for Assessing Meibomian Gland Structure and Function in Dry Eye Disease

Recommendation:
Accept as it is……**YES……**
Accept after minor revision……
Accept after major revision ……
Do not accept (*Reasons below*) ……

Rating	Excel.	Good	Fair	Poor
Originality	√			
Techn. Quality		√		
Clarity		√		
Significance			√	

Reviewer's Name: Dr Aamina

Reviewer's Decision about Paper: **Recommended for Publication.**

Comments (*Use additional pages, if required*)
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Reviewer's Comment / Report

Title & Abstract: The title effectively conveys the focus of the study on meibography and its role in assessing Meibomian gland dysfunction in dry eye disease (DED). The abstract provides a concise summary of the study, highlighting the background, methods, key findings, and conclusion. The statistical significance of the findings is well-presented, and the inclusion of keywords enhances the research's discoverability.

Introduction: The introduction establishes the significance of DED and its pathophysiological basis, particularly emphasizing Meibomian gland dysfunction (MGD) as a primary cause of evaporative dry eye. It successfully contextualizes the importance of meibography as a diagnostic tool, referencing relevant literature, including international workshops and diagnostic standards. The background is well-structured, providing a clear rationale for the study.

Materials and Methods: The study follows a cross-sectional comparative design conducted at a tertiary healthcare center. The methodology is robust, with ethical approval and informed consent clearly stated. The sample size determination is supported by appropriate statistical calculations. The selection criteria for participants, diagnostic techniques, and grading of Meibomian gland loss using Arita et al.'s

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classification ensure a structured and reproducible methodology. The use of SPSS v25 for statistical analysis aligns with standard practices in clinical research.

Results: The results are systematically presented, with demographic details including mean age and gender distribution. The study effectively correlates gland loss with age, tear breakup time (TBUT), and Schirmer's test (SCH I), showing statistical significance in these associations. The high prevalence of severe DED in eyes with grade 3 gland loss strengthens the study's findings. The inclusion of percentages and p-values enhances the credibility and interpretation of results.

Discussion: The discussion reinforces the relevance of meibography in diagnosing and evaluating MGD-related DED. The findings are contextualized within existing literature, supporting the study's conclusions. The strong correlation between gland loss and disease severity underscores the importance of early detection and intervention. The discussion remains focused and analytical, effectively linking results with clinical implications.

Conclusion: The study concludes that meibography serves as an effective and non-invasive tool for assessing MGD-related DED. The association between gland loss and disease severity is emphasized, highlighting the potential benefits of early intervention in preventing disease progression.

References: The references cited are relevant and up-to-date, incorporating key studies and guidelines on DED and MGD. Proper citation enhances the credibility of the research.

Overall Assessment: This study provides valuable insights into the role of meibography in assessing Meibomian gland structure and function in DED. The methodology is sound, the results are well-analyzed, and the discussion aligns with current knowledge in the field. The study contributes significantly to the understanding of DED pathophysiology and diagnostic advancements.