

Abstract No: [9]

Abstract Title: Investigating the Impact of Blue Light Exposure on Retinal Health

Topic: AI in Ophthalmology

Author(s):

First Author Name First Author Surname*¹, Second Author Name Second Author Surname¹

¹University of City

Here you can find an explanation on how to fulfill the preparation of an abstract for ISER 2024. Please note that the text of this abstract example has been generated using OpenAI as an example and its use is subject to OpenAI policy.

Introduction

[Provide background information and the research rationale, clarify current needs or unanswered questions in the field that are addressed in the study.]

Rising concerns surround the impact of blue light from digital devices on retinal health. Though existing studies suggest a link between blue light exposure and retinal damage, comprehensive investigations are essential. This study aims to assess blue light's effects on retinal cells and explore preventive measures.

Objectives

[Clarify the purpose of the study and the hypothesis to be tested.]

The primary objective was to evaluate blue light's cytotoxic effects on retinal pigment epithelial (RPE) cells in vitro, the secondary to examine blue light intensity and duration influence on cell viability, elucidate retinal damage mechanisms, and assess blue light-filtering interventions' efficacy.

Methods

[Describe the experimental design and the procedures that were followed.]

RPE cells were exposed to varied blue light intensities and durations using an LED source. Cell viability was assessed via MTT and LDH assays. Morphological changes were observed via fluorescence microscopy. Western blot analysis was used to investigate apoptotic and oxidative stress markers. Efficacy of blue light-filtering lenses was evaluated.

Results

[Present the main findings of the study and interpret them in the context of the research rationale.]

Preliminary findings showed blue light exposure causing dose-dependent decrease in RPE cell viability, with cellular shrinkage and membrane blebbing. Western blot analysis revealed upregulated apoptotic markers and increased oxidative stress. Blue light-filtering lenses demonstrated significant protective effects.

Conclusion

[Summarize the study, highlight the significance and implications of the results in the respective field of research and briefly indicate future research plans.]

The study confirms blue light's cytotoxic effects on RPE cells, implicating it in retinal disease pathogenesis. These findings emphasize the importance of minimizing blue light exposure, particularly in at-risk individuals. Blue light-filtering interventions show promise in mitigating retinal damage, warranting further investigation for preventive strategies.