Open Access Poster

Cureus

Visualizing Supranuclear Cataracts in Alzheimer's Disease Lenses using Optical Coherence Tomography

Samson Lu¹, Tueng Shen, Ricky Wang, Jing Zhang

1. University of South Florida Morsani College of Medicine 2.

Corresponding author: Samson Lu, medicineandmusic@gmail.com

Categories: Ophthalmology Keywords:

How to cite this poster

Lu S, Shen T, Wang R, et al. (2012) Visualizing Supranuclear Cataracts in Alzheimer's Disease Lenses using Optical Coherence Tomography. Cureus 4(9): e19.

Abstract

Alzheimer's Disease (AD) is a costly and debilitating irreversible neurodegenerative disease that affects at least 15 million people worldwide. Currently, there is no accurate early diagnosis for AD. When symptoms are noticeable, it is often at the end stage progression. Available treatment for AD is only able to slow its progression. An early diagnosis tool may prevent people from experiencing late-stage AD because people could begin treatments early and thereby significantly slow disease progression. The goal of this project was thus to explore the feasibility of such a diagnostic approach through a noninvasive imaging technique called Optical Coherence Tomography (OCT). In 2003, Goldstein et al. described unique supranuclear cataracts in the lenses of postmortem AD patients. In our studies, supranuclear cataracts were detected with OCT in ex vivo lens in AD and Parkinson's Disease (PD) patients, and the composition of the supranuclear cataracts was explored with histology stains of the lenses. Because PD patients also had supranuclear cataracts, it is unlikely that supranuclear cataracts are specific to AD. However, the composition of the supranuclear cataracts in PD lenses have not been studied extensively, so it is possible that the composition of supranuclear cataracts (perhaps the ratio of different protein aggregates) is different between AD and PD. Further research is needed to discover whether supranuclear cataracts occur in other neurodegenerative diseases. While in vivo OCT imaging alone is not able to discern the composition of supranuclear cataracts, detecting supranuclear cataracts in vivo still may be valuable if such cataracts are indicative of neurodegeneration.

Open Access Published 09/12/2012

Copyright

© **Copyright** 2012 Lu et al. This is an open access article distributed under the terms of the Creative Commons Attribution License CC-BY 3.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Distributed under Creative Commons CC-BY 3.0

Cureus

65