Dyslipidemia Screening by Detecting Corneal Arcus Through Corneal Imaging

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This study aimed to detect corneal arcus. The detection of corneal arcus by image analysis has important signi?cance for the disintegration of abnormal lipid metabolism. Corneal arcus is a lipid-rich deposit at the corneoscleral limbus that shares some similarities with the lipid deposition of atherosclerosis. Other studies examined the link between corneal arcus and Cardio-Vascular Diseases. The methodology consisted of obtaining images of subjects both who show the symptom of corneal arcus and who do not to be able to establish a statistical link between people having corneal arcus within ages of 13-50 and the abnormal lipid metabolism. Using the obtained statistical data, a pre-existing algorithm for the detection of corneal arcus by image analysis was used. The algorithm locates the candidate area by detecting the positions of eyelids and eyelashes. Secondly, based on the de?nition of similarity and the projection of color components, “Union-Find” algorithm, is used to accomplish the clustering of the target, the corneal arcus. Finally, the color metrics are de?ned to complete the segmentation of the corneal arcus. The whole process of imaging, analysis of data, and release of final results will be available to patients using a mobile application. The results will appear to users as percentages of how severe their lipids levels are. The message will inform the user of the presence of corneal arcus or lack of. In addition, in the case of corneal arcus being present, the percentage of the size of corneal arcus to size of the iris is paired with average lipids levels statistically associated with detected percentage, and a message informing the user of the estimated lipid levels in blood will appear paired with ranges showing high, low, and normal levels of lipids.

Awards Won:
King Abdulaziz &amp
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