The King-Devick Color Contrast Sensitivity Chart in AMD

Abstract

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OBJECTIVE

This study aimed to determine which colour contrast sensitivity differences exist in early to advanced age-related macular degeneration (AMD) and examine the potential utility of the King-Devick Variable Color Contrast Sensitivity Chart in detecting AMD severity.

METHODS AND ANALYSIS

A total of 85 participants (144 total eyes) were recruited from multiple clinical practices and enrolled in the study. The control group consisted of 57 healthy eyes. The non-exudative AMD (NE-AMD) group consisted of 45 eyes. The exudative AMD (E-AMD) group consisted of 42 eyes. In a single study visit, monocular best-corrected visual acuity (BCVA) at 40 cm with 100% black contrast was determined for each eye. Using the BCVA line, the number of letters correctly identified (out of 10) was recorded for various colour presentations (red, green, blue and yellow) and at decreasing contrast levels (100%, 75%, 50% and 25%).

RESULTS

Our results show worse visual performance under various colour contrast settings in E-AMD patients compared with healthy controls and NE-AMD. Colour contrast performance using blue and yellow differentiated more advanced stages of disease in E-AMD from earlier NE-AMD disease. Blue and black colour contrast performance more accurately identified the E-AMD group from healthy controls and the NE-AMD group.

CONCLUSION

The findings of this study demonstrate that colour contrast, particularly with black, blue and yellow, is impaired in E-AMD suggesting the potential for colour contrast measures to serve as an adjunctive clinical tool in identifying subtle altered visual function as well as the potential for detecting disease severity.