Color vision deficiency in a middle-aged population: the Shahroud Eye Study

Abstract

The aim of this study was to determine the prevalence of color vision defects in the middle-age population of Shahroud, Iran. We selected ٦,٢١١ people from the ٤٠- to ٦٤-year-old population through random cluster sampling. Color vision testing was performed with the Farnsworth D-١٥. Cases with similar and symmetric results in both eyes were classified as hereditary, and those with asymmetric results were considered acquired. Cases that did not conform to standard patterns were classified as unknown category. Of ٥,١٩٠ respondents (response rate ٨٢.٢ %), ٥,١٠٢ participants underwent the color vision test. Of these, ١٤.٧ % (٩٥ % confidence interval ١٣.٧–١٥.٦) had some type of color vision deficiency. Of the ٢,١٥٧ male participants, ٦.٢ % were hereditary and ١٠.٢ % were acquired and of the ٢,٩٤٥ female participants, ٣.١ % were hereditary and ١٠ % were acquired. Hereditary color deficiencies were mostly of the deutan form (٦٣.٨ %), and acquired deficiencies were mostly tritan (٦٦.١ %). The prevalence of hereditary and acquired color vision deficiency, as well as different types of red–green and blue–yellow color vision defects significantly increased with age ($p < ٠.٠٠١$). In conclusion, the pattern of color vision defects among the middle-aged population of Shahroud was significantly different from that seen in the younger population. This could be due to changes associated with age, gender, medical and ocular conditions, and differences in race and environment. Thus, results of previous examinations and the overall health status should be considered before making any judgment about the status of color vision in middle-aged people.