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Color vision discrimination in Retinitis Pigmentosa

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Purpose. Retinitis pigmentosa (RP) is a group of inherited retinal dystrophies affecting many visual functions. The objective of this study is to evaluate the chromatic discrimination in patients with RP through the Farnsworth-Munsell 100 Hue test (FM-100).
Methods. Color discrimination was monocularly assessed with the FM-100 in a group of 47 patients with RP (80 eyes; 31 males) aging from 10 to 58 (33.8±14.6) years. Inclusion criteria were visual acuity ≥20/100; informed consent; absence of previous ocular surgery. Thirty normal volunteers (19 women and 11 men) aging from 18 to 54 years (24.26 ± 12.3 years) were tested as a control group. For the control group the inclusion criteria were: BCVA ≥20/20, normal fundus, absence of history for hereditary eye disease and/or ocular surgery and informed consent. Error scores and color defect axis were investigated.
Results: Out of 80 examined eyes, 64 (80%) eyes presented low color discrimination (error score > 100), with 52 eyes non specific loss and 12 eyes tritan defect. The remaining 16 eyes presented average color discrimination (error score 17-100), with 11 non specific loss, 4 normal and 1 tritan defect. In the control group, 3 (10%) presented superior discrimination (total error of 0 to 16) and 27 (90%) presented average discrimination. Error scores were statistically higher in RP eyes compared to controls (T = 323.000; P = <0.001). A significant positive correlation was found between color discrimination and the visual acuity (r=0.621, P = <0.05).
Conclusions: Diffuse color vision loss was prominent in this cohort of RP patients. These results reflect the cone degeneration associated with the disease and the importance of visual acuity preservation associated with color vision performance.