( ) R1 ( ) R2 ( ) R3 (X) PG0 ( ) PG1 ( ) Estagiário ( ) Tecnólogo ( )
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Service (sector) ElectrophysiologyNº CEP

Color vision loss in patients treated with standard dosage tamoxifen for breast cancer

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Purpose. Systemic adjuvant therapy is recommended immediately following surgical removal of the primary tumor in the majority of patients with early breast cancer, to prevent the recurrence of distant metastases. Tamoxifen is an antiestrogenic drug successfully used in the therapy of breast cancer, but some studies reported that this drug can induce retinal changes as a side effect. This study aimed to determine whether standard doses of tamoxifen might cause color vision abnormalities. Methods. Color discrimination was evaluated monocularly by the Farnsworth-Munsell 100 Hue test (FM100). Participants were 22 asymptomatic females previously diagnosed and treated for breast cancer. Inclusion criteria were: BCVA≥0.1 logMAR, normal fundus, absence of history for hereditary eye disease and/or ocular surgery and informed consent. Patients were treated with 20mg/day tamoxifen for breast cancer from 1 to 65 months (31.4 ± 21.6; median = 37 months). Both eyes were tested in 13 patients and one eye in 9 patients, with a final sample of 35 eyes. Results: Nine eyes (25.7%) presented low discrimination (error score 104-156) with non specific loss. Out of the 13 patients tested bilaterally, three (23%) showed low discrimination in both eyes. Twenty five eyes (71.4%) presented average discrimination (error score 26-232). One eye (2.9%) presented superior discrimination (error score 16). There were no significant correlations between color vision discrimination and the cumulative dose of tamoxifen in this cohort. However, the three cases with bilateral color vision loss had used the drug for at least 3 years. Conclusions: Standard dosage tamoxifen showed a minor central retinotoxic effect in patients with breast cancer. Bilateral color vision loss found after 3 years of usage is consistent with previous reports showing retinotoxic effects only after two years of tamoxifen usage. Color vision assessment should be included in routine eye examination for tamoxifen treated patients as an additional tool that might reliably provide more information about the risk of ocular toxicity.