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Service (sector) Electrophysiology Nº CEP

POSSIBLE RETINOTOXIC EFFECTS OF RADIOTHERAPY AND CARBOPLATIN IN CHILDREN WITH RETINOBLASTOMA

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Purpose: To evaluate retinal function by full-field electroretinographic recording (ERG) in eyes treated for retinoblastoma (Rb) with external beam radiotherapy (EBRT) and/or systemic chemotherapy, with carboplatin plus local treatments. **Methods:** Eighteen eyes (N=18) from 15 children (10 girls and 5 boys) previously treated with EBRT and/or systemic chemotherapy with carboplatin for bilateral retinoblastoma were referred to ERG testing (mean age at test = 7.3 ± 2.7 years). Peak-to-peak amplitude, b-wave implicit time values and visual acuity measured by ETDRS or Snellen chart, were compared to a control group of volunteers (N = 16) aging from 6.1 to 12.7 years (mean age at test = 9.1 ± 2.1 years). Consent forms were obtained from each child's parents or guardians before testing. Full-field ERGs were obtained in the remaining eye through a dilated pupil after 30 minutes of dark adaptation. ERGs were recorded with a Burian-Allen bipolar contact lens electrode from the anesthetized cornea. ERG and visual acuity outcomes were analyzed by Kruskal-Wallis test and situations with significant differences were realized multiples comparisons by Tukey-HSD test (honest significant difference). **Results:** There was no significant difference for ERG responses for rod response, maximal response, oscillatory potentials, cone single flash and flicker in the eyes of bilateral cases, which underwent EBRT and/or systemic chemotherapy with carboplatin, but both groups showed severely reduced amplitudes for five ERG responses when compared to the control group. The mean visual acuity (VA) was 0.99; 0.21 and 0.04 logMAR respectively. **Conclusions:** Retinal function assessed by full-field ERG was severely reduced in eyes treated for Rb with EBRT and/or chemotherapy with carboplatin plus local treatments. These results were consistent with reduced VA. ERG testing can be used to help in determining the effects of different methods of treatment for this disease.