VEP TO RED-GREEN STIMULATION IN COLOUR DEFICIENT CHILDREN

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The purpose was to compare chromatic VEP response to isoluminant red-green stimulus in children with congenital red-green colour deficiency with a control group of 30 children with normal colour vision. 15 children (7-18 years) with congenital colour vision deficiency (8 in deutan and 7 in protan axis) and 30 healthy children (7-19 years) were included in the study. Colour vision was assessed with Ishihara plates, Nagel anomaloscope, Mollon-Reffin Minimalist test, Farnsworth-Munsell D-15 saturated and desaturated test and Farnsworth-Munsell hue 100 test. VEP were recorded to isoluminant red-green stimulus. Isoluminant point was determined for each child with normal colour vision subjectively by using heterochromatic flicker photometry, whereas for children with abnormal colour vision r 0.5 was used. The stimulus was a 7 deg large circle composed of horizontal sinusoidal gratings, with spatial frequency 2 cycles/deg and 90 % chromatic contrast. VEP were recorded from Oz (mid occipital) position. Children were tested binocularly. Latency and amplitude of positive (P) and negative (N) wave were measured and so was mean amplitude (N-P wave). Results showed that N wave was present in 24/30 children with normal colour vision (110 ± 25.1 ms; 9.7 ± 4.8 μV) and only in 1/15 child with colour vision deficiency (93 ms; 3.2 μV). P wave was present in 30/30 children with normal colour vision (138 ± 21.1 ms; 21.1 ± 13.5 μV) and in 13/15 children with colour vision deficiency (131.9 ± 6.1 ms; 19.4 ± 10.7 μV). In children with normal colour vision waveform changed from predominantly positive to negative wave with increasing age, whereas in colour deficient children no obvious waveform changes were observed. VEP response to isoluminant chromatic stimulus showed different characteristics in children with congenital colour vision deficiency compared to children with normal colour vision.

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