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Grating acuity deficits measured by sweep-VEP in unilateral and bilateral congenital cataract

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Purpose: The purpose of this study was to measure grating acuity deficits in children treated surgically for either unilateral or bilateral congenital cataract.

Methods: Grating acuity was measured by sweep-VEP in 81 children who met the following inclusion criteria: informed consent, previous surgery for congenital cataract, absence of surgical complications and absence of neurological condition. Out of these 81 patients, 27 had unilateral and 54 had bilateral cataracts. Unilateral cases had grating acuity measured at 4-48 months of age (mean 18.67 ± 8.34) and the cataract was surgically removed between 2-28 months of age (12.21 ± 6.07). In this group of 27 unilateral cases, 20 were wearing spectacle correction and 7 had intraocular lens implant (IOL). Bilateral cases had VA measured at 9-48 months of age (mean 17.45 ± 10.29) and the cataract removed between 1-31 months of age (10.30 ± 6.94). Out of these 54 bilateral cases, 50 were wearing spectacle correction and 4 had intraocular lens implant (IOL).

Results: Overall mean grating acuity deficit from mean normal was 0.71 LogMAR (2.36 octaves) in unilateral cases, and 0.59 LogMAR (1.96) in bilateral cases. Amblyopia was statistically more severe in unilateral when compared with bilateral cases by t-test ($t=2.27$, $p=0.0258$).

Conclusions: A considerable VA deficit was found in this cohort of children treated for either bilateral or unilateral cataract. These results are consistent with the age of diagnosis and surgery that exceed the limits for a good visual development. As described previously in the literature bilateral cases showed smaller grating acuity deficits than unilateral ones.