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Factors influencing prevalence of amblyopia in children with anisometropia Memorial Institute of Ophthalmic Research, Cairo, Egypt

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Amblyopia is a common disorder of the visual system without any structural anomaly. Anisometropic amblyopia is a difficult type of amblyopia to be diagnosed, since the sound eye overlaps the visual defect of the amblyopic eye. This randomized study included 60 children from the age of 6-12 years including 36 males, and 24 females with anisometropia and no structural ocular abnormalities including strabismus, previous ocular surgery, ocular trauma, neurologic disorders which could influence visual acuity, or with BCVA of the sound eye $<20/40$. The patients were selected from the Outpatient Clinic of Memorial Institute of Ophthalmological Research. The patients were classified into 4 groups: Group I: Spherical anisometropic group in which the difference in the spherical equivalent between the eye was $>2D$ (30 patients). This group will be subdivided into: Myopic group- spherical power difference was $>2D$ (15 patients); Hypermetropic group- spherical power difference was $>2D$ (15 patients). Group II: Cylinder power difference was $<2D$ cylindrical power difference (15 patients). Group III: Cylinder power difference was $>2D$ cylindrical power difference (15 Patients). All patients underwent the following: 1) A structural questionnaire (Appendix) was planned to fulfill the following data: Age; gender; the age at which eyeglasses were first worn (<5 years of age or ≥ 5 years of age); history of spectacle correction, occlusion or penalization therapy; history of previous ocular surgery, ocular trauma; and is the child right handed or left handed; 2) Ocular examination; monocular examinations, testing the right eye first; uncorrected visual acuity and BCVA; cycloplegic refraction was performed after application of 1% cyclopentolate eye DROPS; examination of the external eye; and fundus examination. Sixty patients were diagnosed with spherical anisometropia, 15 were diagnosed with myopic spherical anisometropia, and 6 (40%) patients had amblyopia. 10 of 15 (67%) patients with hypermetropic spherical anisometropia also had amblyopia, 7 of 15 (47%) astigmatic anisometropia (cylinder power difference was $<2D$) patients had amblyopia and 11 of 15 (73%) astigmatic anisometropia (cylinder power difference was $<2D$) patients had amblyopia. Through multi-regression analysis we found that line acuity difference between both eyes was the only parameter that affects the right best corrected visual acuity (BCVA). The study had some limitations; we had no information on the initial visual acuities of children with amblyopia, the intensity of the prescribed treatment regimen, or the children's compliance, all of which are important determinants of final VA outcomes, we found that the amount of refraction, magnitude of anisometropia and line acuity difference between both eyes correlate with the final best corrected visual acuity (BCVA).

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