Abstract

Title:
Visual problems in children and young adults with refractive errors.

Aim and objective:
To evaluate visual functions and visual performance in children and young adults with refractive errors and the effectiveness of ophthalmological interventions on visual development.

Materials and methods:
The participants in this study comprised children and young adults with refractive errors, aged 5-30 years, attending the Low Vision and paediatric ophthalmology department at Institute of Ophthalmology, Joseph Eye Hospital, Tiruchirappalli. Data relating to distant visual acuity, near visual acuity, ocular examination, refraction after cycloplegia, near vision, contrast sensitivity, colour vision, field of vision and functional visual assessment were also collected and reviewed after refractive correction.

Results:
The comparison of visual functions and functional skills in children and young adults with refractive errors showed that individuals in low vision groups had reduced visual functions even with best corrected visual acuity than the individuals in normal vision group. There was a statistically significant difference in uncorrected visual acuity, best corrected visual acuity, colour vision, contrast sensitivity, stereopsis, near point of accommodation, near point of convergence etc. between Group 1(patients with vision ≥ 6/18) and Group 2(patients with vision<6/18).Functional skills like reading speed, writing speed and mobility were also reduced in low vision groups that shows statistically significant difference between Group 1 and 2 and also had significant difference among subgroups of Group 1 and 2. None of the patients had age appropriate functional skills in Group 1 and Group 2. After using interventions(like optical and non-optical aids) for 6 months, there was a statistically significant improvement in
BCDV, functional skills between first visit and follow-up visit and had significant differences among subgroups. But none of the individuals in Group 1 and 2 had age appropriate functional skills.

**Conclusion**

Refractive errors, with or without associated amblyopia, can lead to reduced visual functions like contrast sensitivity, stereopsis, colour vision, visual fields and reduced functional skills such as reading, writing, mobility. These important determinants of quality of life, especially in children and young adults, which can lead to poor performance in education, vocation and other daily activities.

This study highlights the significance of visual functions and functional vision and regular follow-up, in patients with refractive errors especially in low vision patients. Mere improvement in visual acuity does not mean attainment of quality visual ability. In the present study, it is highlighted that although patients had an improvement in clinical visual parameters, the functional skills like reading and writing were not age appropriate. Inspite of improved clinical and functional vision with interventions, at short term follow-up, the visual skills required, were not age appropriate, both at initial and at also follow-up visit. Hence, the improvement in visual functions as well as functional vision parameters should be monitored as a criteria to determine the quality of vision in those with refractive errors especially in the paediatric age group.