CHAPTER 5

5.1 CONCLUSION

The objective of this study was to identify functional visual capacity among the children with Cerebral Palsy and also prescribe appropriate visual aids. This was a descriptive observational study in which each child was taken much care during the diagnosis. From our findings, it was found that Spastic type of Cerebral Palsy was the most common type to have visual issues and among the spastic group of children, spastic quadriplegia and spastic diplegia were more prevalent. Special need and care should be given to the children belonging to these categories so as to improve the visual functions of these children.

Method for assessment of visual acuity varies with age. The study showed the importance of having a range of measures and tools in order to still gather objective information on various visual functions for children with varied capacities and needs.

Tropia (manifest strabismus) was the most interesting finding in this study. Tropia could be overcome by the compensatory head postures and face turn. This study also looked at presence of the face turn in the children with CP and further studies could be done to find the effects of face turn in strabismic subjects.

On the assessment of the refractive error, cyclopentolate and tropicamide eye drops were used. Previous studies have made use of Atropine eye drops. Use of cyclopentolate and tropicamide eye drops showed reliable findings in our study.
The effect of cyclopentolate showed no side effects amongst the children with Cerebral Palsy in this study. Results showed that the prevalence of refractive error was high among these children. Proper care should be given to prescribe these children, since uncorrected astigmatism of high magnitude may lead to meridional amblyopia.

The data in this study showed a high prevalence of refractive errors, reduced visual acuity and reduced accommodation in children with Cerebral Palsy. It also focused on assessment of visual acuity during follow-up visit to check if there was improvement in the visual acuity following the use of appropriate refractive correction. Previous study has not mentioned about prescribing the children recruited and the improvement.

So far, only lag of accommodation in children with Cerebral Palsy is highlighted in the existing studies, whereas our study also points out the presence of lead of accommodation which adds to the uniqueness of the study.

The finding of reduced accommodation revealed that prescription of near corrections may improve the performance of the children and hence prescriptions based on the dynamic retinoscopy values were given. Visual acuity both for distance and near among the CP children was reduced compared to age matched normal children in the study which was highly significant statistically. There was statistically significant difference in accommodative response between CP and control group in this study, as “lead of accommodation” was found in the CP group. Attention should be given to the accommodative status while prescribing...
spectacle correction to children with CP. Visual acuity and spectacle compliance should be assessed in follow-up visits after spectacle prescription.

The findings from our study agree with and confirm the previous literature that children with CP are at greater risk of having or developing ocular abnormalities. Hence, more emphasis should be given to early identification and intervention which would help the child’s physical, social, academic, and visual development. Our study suggests the need to create better awareness amongst parents and also health practitioners who are responsible for the health and overall development of children with CP besides visual development. Therefore, as soon as a diagnosis of CP is made, a full eye examination should be done and yearly thereafter. Though comprehensive ocular assessment of children with CP is extremely challenging, with a comfortable, familiar environment preferably with play area and with sufficient clinical support would create a child-friendly atmosphere thereby would allow the examiner to assess all the visual functions in these children. For better visual prognosis, children diagnosed with CP to be referred for comprehensive visual assessment at the earliest.
5.2 LIMITATIONS

- Cerebral Palsy is a neurological developmental disorder mainly affecting motor abilities. Health, social emotional and other reasons did impact the ability of a few children to cooperate during the assessment leading to some inadequate or incomplete assessments.

- Some children had poor fixation due to poor attention span and hence they were unable to fixate on the given target for the longer duration.

- It was very difficult to perform accurate retinoscopy on this population due to variable fixation, poor cooperation of the child; hence there was a discrepancy between dry (non-cycloplegic) retinoscopy and Cycloplegic retinoscopy.

- Type of Asymmetry of Visual field was not assessed due to poor cooperation and head posture.

- The pathology of the anterior visual pathway was not assessed for the children.
5.3 RECOMMENDATIONS

To include the detection acuity, visual field and accommodative status assessment in the existing protocol for all the children specifically in a comfortable environment for the children. These assessments would give complete information of the child so that intervention could be effectively managed with the appropriate visual devices and training. Also the information from this assessment would help the practitioner include guidance on supporting vision during other rehabilitation and intervention activities.
5.4 FUTURE DIRECTIONS

There is no specific tool for the assessment of refractive status for children with Cerebral Palsy. A specific instrument like specialized auto-refractometer along with the assessment of accommodation could be designed with the help of recent technologies available. Measurement of corneal curvature with the help of automated keratometer will help in the accurate findings of corneal curvature since in this study, the distribution of both With-the-rule and Against-the-rule Astigmatism was found to be equal among the children with Cerebral Palsy unlike normal children. This would help us in understanding the process of emmetropization in children with Cerebral Palsy. From the challenges faced during the assessment of children with Cerebral Palsy, the study also suggests future researchers to analyze the quantitative visual field, contrast sensitivity and colour vision.