

Comments on: Comparison of higher order aberrations in amblyopic and non-amblyopic eyes in pediatric patients with anisometropic amblyopia

Dear Editor:

We read the interesting study by Hoshing *et al.*^[1] reporting the higher levels of internal higher order aberration (HOA) in the amblyopic eyes of patients with anisometropic amblyopia.

In the study,^[1] the authors compared the HOAs of amblyopic eyes (group 1) with the HOAs of the nonamblyopic eyes (group 2) of the same individual that had emmetropia or lower ametropia. This could lead to a false association between high HOAs and anisometropic amblyopia when the real association could have been between high HOAs

and ametropia. The authors should have compared HOAs of group 1 with the HOAs of other age-matched subjects having comparable magnitude of ametropia sans amblyopia.

In the paucity of such a comparison group, an analysis of HOAs in the eyes with lower ametropia with the eyes having higher ametropia (with and without amblyopia) could rule out a false association of high HOAs with anisometropic amblyopia in place of higher ametropia.

Nevertheless, we are in agreement with the authors as a study done by us in 2013 using the iTrace[®] on 86 eyes of 47 children had also showed higher levels of the HOA in the amblyopic eyes (anisometropic amblyopia as well as isoametropic amblyopia) in comparison with the nonamblyopic eyes of the same patients as well as the nonamblyopic eyes of other subjects having the same degree of ametropia [Table 1] sans amblyopia.^[2]

We had treated some of our patients with high HOAs and residual anisometropic amblyopia who failed

Table 1: Higher order aberrations in the amblyopic eyes in comparison with the nonamblyopic eyes of other subjects having the same degree of ametropia

Order	Aberration	Mean for normal eyes	Mean in anisometropic amblyopia	t-test
3	Coma	0.091417	0.200375	0.013708
4	Tetrafoil	0.0375	0.18825	0.03641
4	Tetrafoil	0.039292	0.135375	0.030013
5	Trefoil	0.029708	0.08825	0.022094
5	Coma	0.024375	0.07625	0.024318
5	Trefoil	0.022792	0.08625	0.058334
5	Pentafoil	0.021458	0.129375	0.045299
6	Hexafoil	0.016458	0.060875	0.044712
6	Tetrafoil	0.014083	0.0445	0.033189
6	Astigmatism	0.013917	0.041375	0.002499
6	Tetrafoil	0.016083	0.036	0.081585

occlusion therapy with “aberration neutralizing” lenses (i.Scription®, Zeiss, Germany) and found modest reduction in the HOAs using i.Profiler plus (Zeiss, Germany). Although our patients had marginal (0-1 line) improvement in vision on the logMAR (ETDRS) chart, there was no additional improvement when the patching was given with such spectacles. As the clinical improvement was marginal and the cost of lenses was high, we did not continue this modality to manage the high HOAs of the patients with anisometropic amblyopia.

We request the authors to share their perspective or experience regarding the benefits of treating high HOAs in children with amblyopia.

Although higher levels of HOAs in Amblyopic eyes with anisometropia are noted since long, we still wonder about the following questions regarding high HOAs with amblyopia and would appreciate authors perspectives on the same.

1. Whether higher HOAs are associated with higher degree or higher prevalence of anisometropic or isoametropic amblyopia or both?
2. Are higher HOAs an etiological factor for partial or nonimprovement of vision in residual amblyopia?
3. Would treating the HOAs result in better visual outcomes in amblyopia?

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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Access this article online	
Quick Response Code:	Website: www.ijo.in
	DOI: 10.4103/ijo.IJO_353_20

Cite this article as: Solanki M, Jahan S, Kothari M, Abdal MO, Mehta M, Ingle G. Comments on: Comparison of higher order aberrations in amblyopic and non-amblyopic eyes in pediatric patients with anisometropic amblyopia. *Indian J Ophthalmol* 2020;68:2328-9.

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