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LOW VISION AIDS IN OPTIC ATROPHY

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Abstract

Purpose: *To analyze utilization of prescribed Low Vision devices in cases of Optic Atrophy.*
Methods: *Prospective, Cross Sectional Study was performed in tertiary eye care centers within the period of 3 years. Screening was done and subjects were taken to tertiary centers for further evaluation. Visual functions along with slit lamp and fundus evaluation was performed and treatment was provided accordingly. Subjects who were in the criteria of low vision was enrolled in the study and given low vision aids as per the need. Training of usage of devices was given for 15 days and follow up was taken after 3 months to know utilization of prescribed low vision devices. Data was collected and analyzed using SPSS software version 20.*
Results: *97% of subjects were enrolled into the study. Out of them, 61% were males. Spectacle Refraction was best achieved by Stenopaeic Slit refraction and given full prescription where required. For distance, Monocular Hand Held Telescopes, Clip on Telescopes or Spectacle Mounted Telescopes were prescribed. For near, Aspherics, Hand Held Magnifiers, Stand Magnifiers And Or Reading Stand were prescribed. Photochromatics or Dark Sunglasses were prescribed for reduction of glare. On 3 month follow up, it showed that Monocular Hand Held Telescopes of variable power (69%) was accepted maximum for distance. Photochromatics (96%) was maximally accepted for reduction of glare. For near, Non Optical Device – Reading Stand (78%) was accepted by most of the subjects. It shows that optical devices help much more for distance while non optical devices should be preferred for near work.*
Conclusions: *In cases of optic atrophy, Monocular Hand Held Telescope of variable power as per the need, Photochromatics for glare reduction and Reading Stand for near work should be prescribed.*

Keywords: *Optic atrophy, Low Vision Aids*

INTRODUCTION:

Optic atrophy is a degeneration of optic nerve fibers. Here, myelin sheath is lost and it is characterized by pallor of the disc. This pallor mainly occurs due to loss of vascularization on the optic nerve. There are many reasons to cause optic atrophy. They are: A. Primary Optic atrophy – it mainly occurs due to diseases caused by central nervous system. No local disturbances are present. B. Secondary Optic Atrophy – it mainly occurs due to the swelling of the optic disc. Eg papilloedema. C. Consecutive Optic Atrophy – it mainly occurs due to extensive retinal disease like Retinitis Pigmentosa, Central Retinal Artery Occlusion, etc. In case of optic atrophy, visual acuity is being deteriorated due to improper stimulation is being encroached to the brain because optic nerve carries the visual sensation. In case of optic atrophy, permanently optic nerve head is being damaged and due to this, low vision occurs.

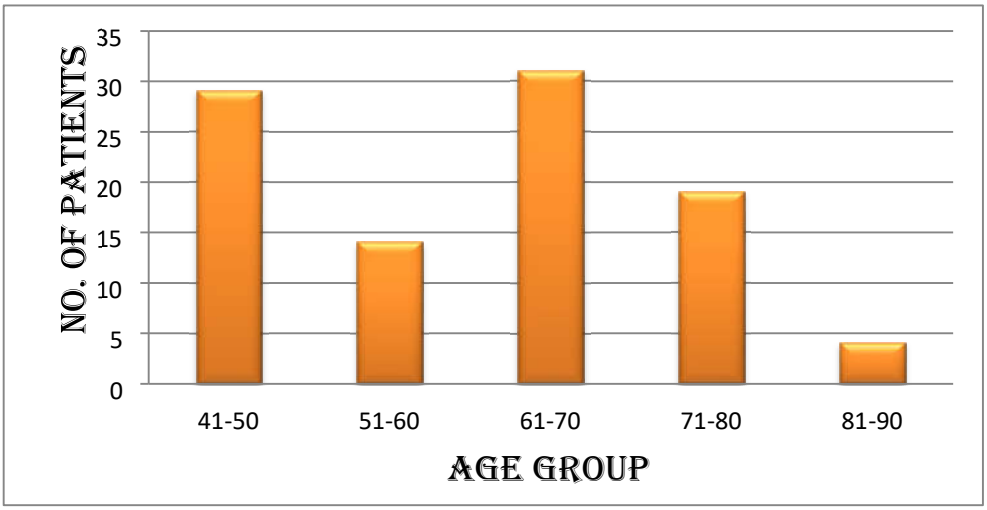
METHODOLOGY:

Prospective, cross sectional study was performed within the period of 3 years in various tertiary eye care centers. All the findings which are included in this study was taken by single optometrist to avoid discrepancies. All the subjects are enrolled with informed consent. Screening was done and subjects having optic atrophy were referred to tertiary eye care centers where further evaluation, treatment and low vision management should be carried out. Subjects having optic atrophy, irrespective of the cause were included in the study. Subjects who comes under the criteria of low vision were included for the study. Subjects having vision less than low vision criteria and subjects whose vision is better than low vision criteria was excluded from the study. Subjects having systemic or ocular problems which can affect the study or subjects who were not ready to be a part of the study were excluded from the study. Visual functions were tested like; Visual Acuity was tested with Log Mar chart, Contrast Sensitivity with Pelli Robson Chart and Colour vision with PV 16(Precision vision) colour vision test which was followed by slit lamp evaluation and fundus evaluation. Spectacle correction was done objectively and subjectively by Auto Refractometer, Retinoscopy and Stenopaeic slit refraction. It was found that best visual acuity is achieved by Stenopaeic Slit refraction when compared with Auto Refractometer and Retinoscopy. Optical, Non Optical and or Electronic devices were prescribed to the subjects and training of usage of the devices was given for 15 days. Subjects were called for the follow up and analyzed which device is most used for distance and near. Data was collected as per the responses of the subject and analyzed using SPSS software version 20.

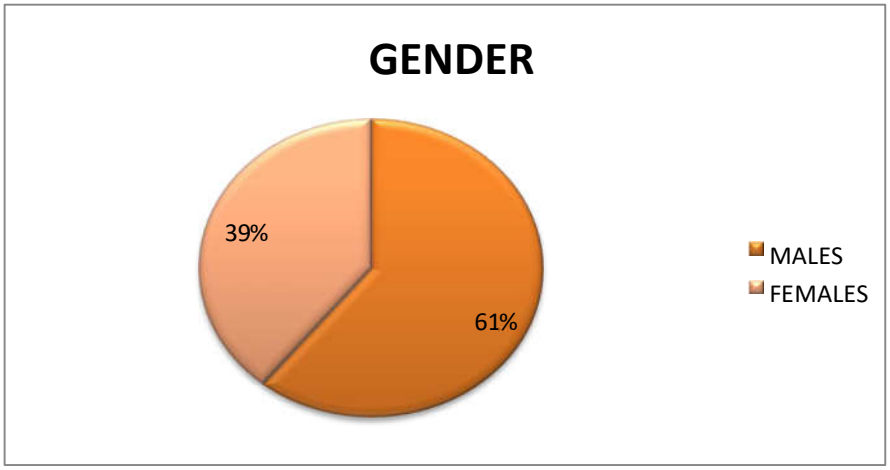
RESULTS:

97 subjects having optic atrophy irrespective of the cause and which falls under the low vision criteria were enrolled in the study. Subjects were distributed age wise and is showed in the Graph 1. Maximum subjects were in the age group of 61- 70 years. In Graph 2, subjects were distributed as per the gender. It shows that 61% of the subjects were male and rest were female. Spectacles should be given if there is any refractive error. It should be given on the basis of Stenopaeic sSlit refraction. For distance, Telescopes like Hand Held Telescopes, Spectacle Mounted Telescopes or Clip on Telescopes were prescribed. For near, Aspherics, Stand Magnifiers, Hand Held Magnifiers, Reading Stand was prescribed. Photo chromatic lenses, Dark Sunglasses were prescribed to reduce glare. Graph 3, shows utilization of the prescribed devices in percentage. It shows that Hand Held Monocular Telescope of variable power (69%) is accepted for distance. Most of the subjects (96%) had accepted Photochromatics for reduction of glare and Reading Stand (78%) for near work. It shows that optical devices help much more for distance while non optical devices should be preferred for near work. This should be taken into consideration while prescribing low vision aids for optic atrophy.

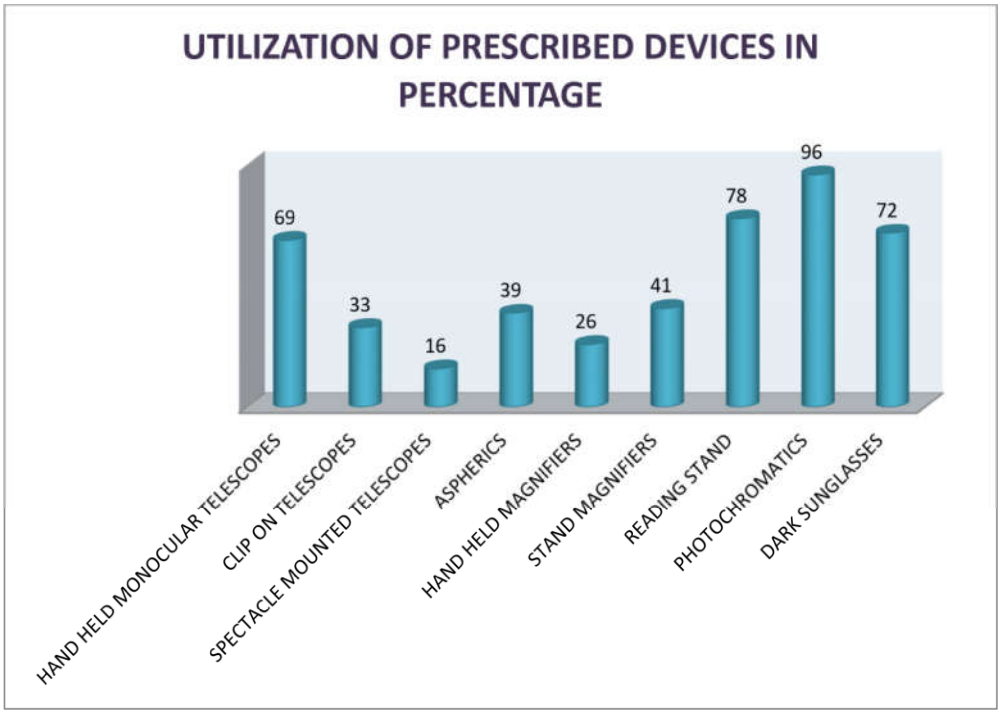
GRAPH 1: SHOWS AGE WISE DISTRIBUTION OF SUBJECTS



GRAPH 2: SHOWS GENDER WISE DISTRIBUTION OF SUBJECTS



GRAPH 3: SHOWS UTILIZATION OF PRESCRIED LOW VISION DEVICES IN CASES OF OPTIC ATROPHY IN PERCENTAGE.



DISCUSSION:

In Optic Atrophy, myelin sheath is lost and is characterized by pallor of the disc. Here, optic nerve head gets damaged which will lead to diminish in vision and central vision is affected. In cases of optic atrophy, Monocular Hand Held Telescopes of variable power like 3.2 x, 4x, or 6x is maximally accepted for distance. Glare and photophobia occurs both indoors and outdoors in these cases. So excessive lighting should be avoided and Photochromatics should be prescribed. For near, optical aids do not help much more. Non optical devices like Reading Stand should be prescribed. This study should be considered when prescribing low vision aids to the patients of optic atrophy.

CONCLUSIONS:

In cases of optic atrophy, Monocular Hand Held Telescope of variable power as per the need, Photochromatics for glare reduction and Reading Stand for near work should be prescribed.

CONSENT:

Oral/ written consent was obtained from patient as well as from tertiary eye care centers.

ETHICAL APPROVAL

Not applicable

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