EPH - International Journal of Medical and Health Science

ISSN (Online): 2456-6063
Volume 06 Issue 04 December 2020

DOI: https://doi.org/10.53555/eijmhs.v4i1.10

OPTICAL CORRECTION AND UTILIZATION OF LOW VISION DEVICES IN MACULAR HOLE

Partha haradhan chowdhury[1*], brinda haren shah[2]

*[*1]M.optom, associate professor, principal*
Department of Optometry, Shree Satchandi Jankalyan Samiti Netra Prasikshan Sansthan, Pauri, Affiliated to Uttarakhand State Medical Faculty, Dehradun, India
[2]M.optom, guest lecturer Department of Optometry, Shree Satchandi Jankalyan Samiti Netra Prasikshan Sansthan, Pauri, Affiliated to Uttarakhand State Medical Faculty, Dehradun, India

Corresponding author:-

Abstract:

PURPOSE: *To analyze optical correction and utilization of low vision devices in cases of macular hole.*
METHODOLOGY: *Prospective cross sectional study was performed at tertiary eye care centers within the period of 2.5 years. Screening was done and subjects were taken to tertiary eye care centers for further evaluation. Subjects with macular hole were included and visual functions along with slit lamp evaluation and fundus evaluation were performed. In refraction, best visual acuity is achieved with stenopaeic slit refraction. Low vision aids were given and subjects were trained to use it. Follow up was taken after 3 months and analyzed which device is used maximum by the subjects having low vision. Data was analyzed using SPSS software version 20.*
RESULTS: *46 subjects were enrolled with the mean age group of 64.8 years. 63% subjects were male and 37% were females. Among prescribed devices, 88% of subjects were using spectacles given by stenopaeic slit refraction and 79% were using See TV for distance. For near, 91% of subjects reported using dome magnifier of variable power with extra illumination prescribed as per the need. This should be taken into consideration when refracting and prescribing low vision devices in cases of macular hole.*
CONCLUSION: *In cases of macular hole, refractive correction should be done with stenopaeic slit. Spectacles and See TV (2x) should be prescribed for distance and dome magnifier of variable power as per need should be prescribed for near.*

Keywords: *Macular hole, Stenopaeic slit refraction, Low vision aids*

INTRODUCTION:

Macular hole is a condition where small break is present in the macular area. Macula is a part of the retina in which images of an object is fallen. So, in case of Macular hole, central vision is affected and there are lots of chances of deterioration of vision. Distortion is also present in this case. In this case, black spot appears in front of the patient due to damage in the cone cells. Macular hole is generally created by Trauma, Diabetic Retinopathy etc. Vitrectomy is performed to treat the macular hole. Post surgery refraction is must. Retinoscopy should be done for proper refractive error correction but as per the study, best visual acuity is achieved with the help of stenopaeic slit refraction. So, it is advisable to do proper refraction with Stenopaeic slit before low vision trials.

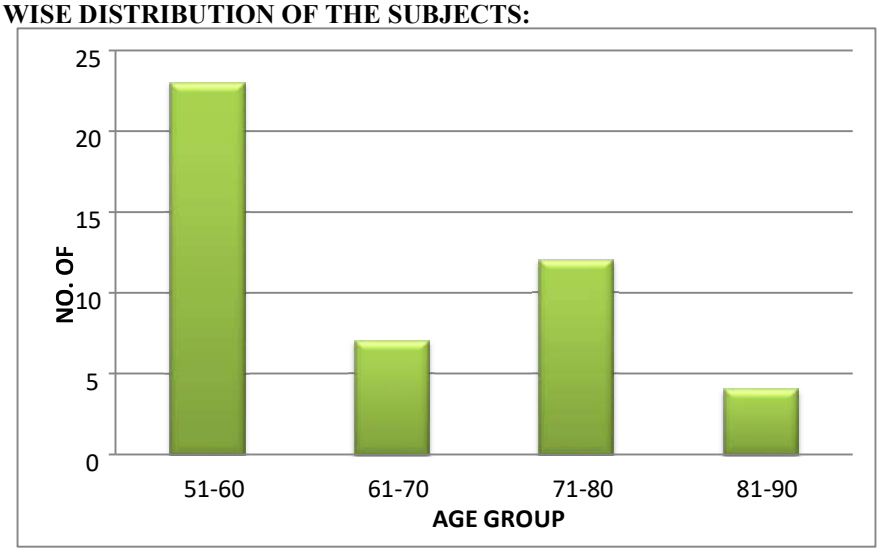
METHODOLOGY:

A prospective cross sectional study was performed at tertiary eye care centers within the period of 2.5 years. All the subjects are enrolled with informed consent. Low vision screening was done at various centers and subjects were taken to tertiary eye care centers for further evaluation. Subjects having macular hole and which fall under the criteria of low vision are included in the study. Subjects who do not fall into the criteria of low vision and vision with hand movement to no Pl were excluded from the study. Subjects having any other ocular or systemic problems which can affect the study were also excluded from the study. Visual functions along with slit lamp evaluation and fundus evaluation were performed at tertiary eye care. Visual acuity was assessed with Log Mar chart. Contrast Sensitivity with Pelli Robson chart and Colour vision with PV 16 (Precision vision) colour vision test. Objective and subjective refraction was done by Automated Refractometer, Retinoscopy and Stenopaeic slit. Among three, best visual acuity is achieved by Stenopaeic slit. After full refractive correction for distance and near, a trial of low vision optical, non optical and electronic devices were given as per the requirement of the subject. Training was given for the usage of the prescribed device and follow up is taken after 3 months. At follow up, which device was used maximum by the subject for distance and near was analyzed and data was recorded. This data was analyzed using SPSS software version 20.

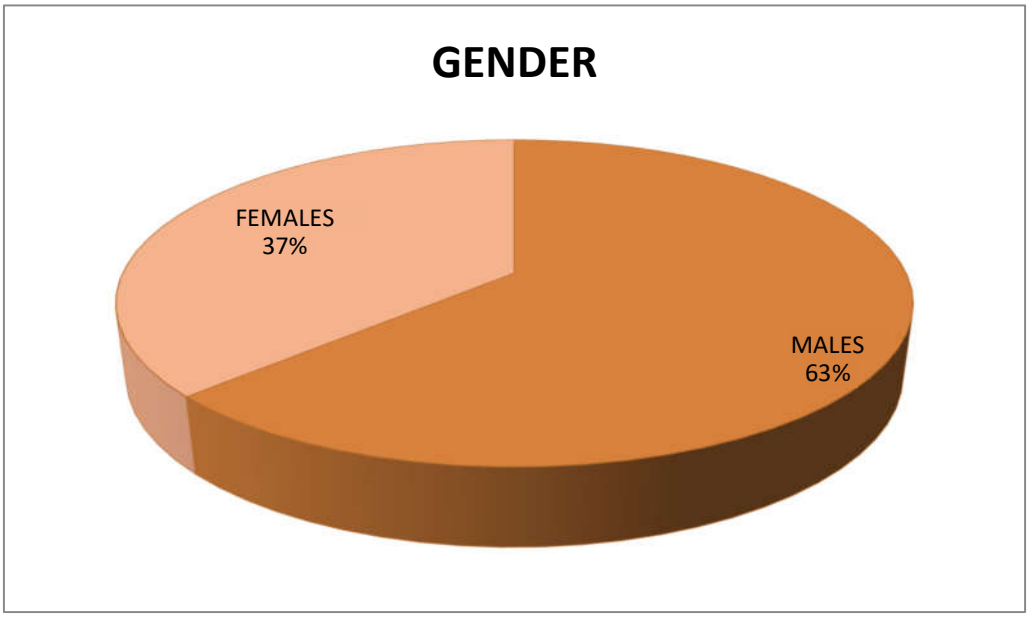
RESULTS:

46 subjects were enrolled in the study. The mean age group of the subjects was 64.8 years with the youngest at 53 years and oldest at 86 years. Graph 1 shows age wise distribution of the subjects. Graph 2 shows gender distribution of the subjects. 63% subjects were male and 37% of subjects were female. Spectacles and See TV (2x) were prescribed for distance correction. For near, prismospheres, hand held magnifiers, dome magnifier of variable powers were prescribed. Reading stand was prescribed in non optical device and portable video magnifier was prescribed in electronic magnification. Graph 3 shows utilization of various prescribed low vision devices in percentage. Chart 1 shows the maximum usage of devices out of the prescribed device. It shows that spectacle correction done by Stenopaeic slit refraction along with See TV (2x) should be prescribed for distance and Dome magnifier with extra illumination as per required power should be prescribed for near in cases of Macular hole.

GRAPH 1: AGE WISE DISTRIBUTION OF THE SUBJECTS:



GRAPH 2: SHOWS GENDER WISW DISTRIBUTION OF THE SUBJECT



GRAPH 3: SHOWS UTILIZATION OF PRESCRIBED DEVICES IN PERCENTAGE

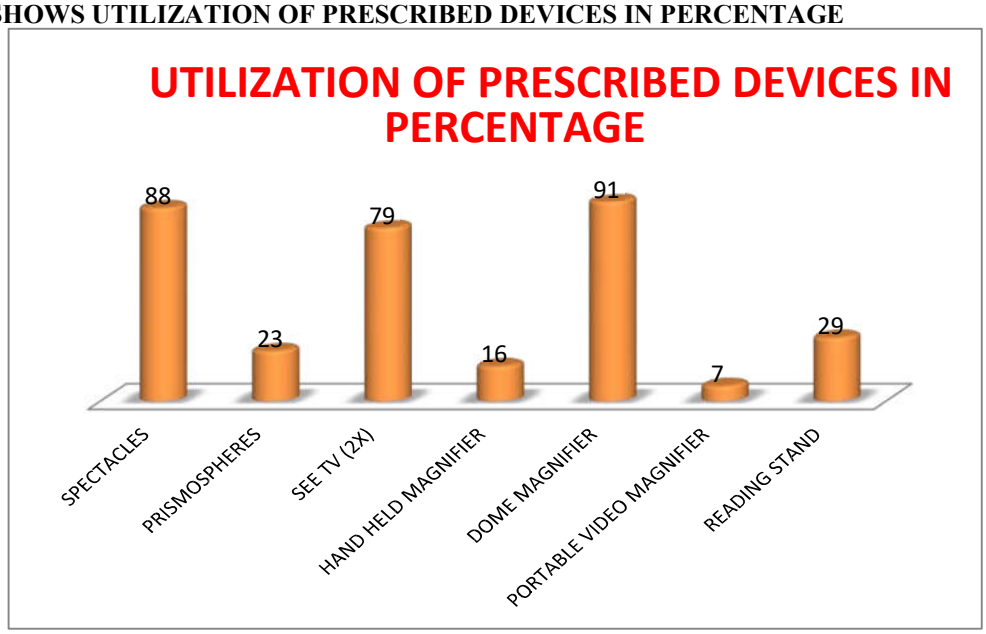
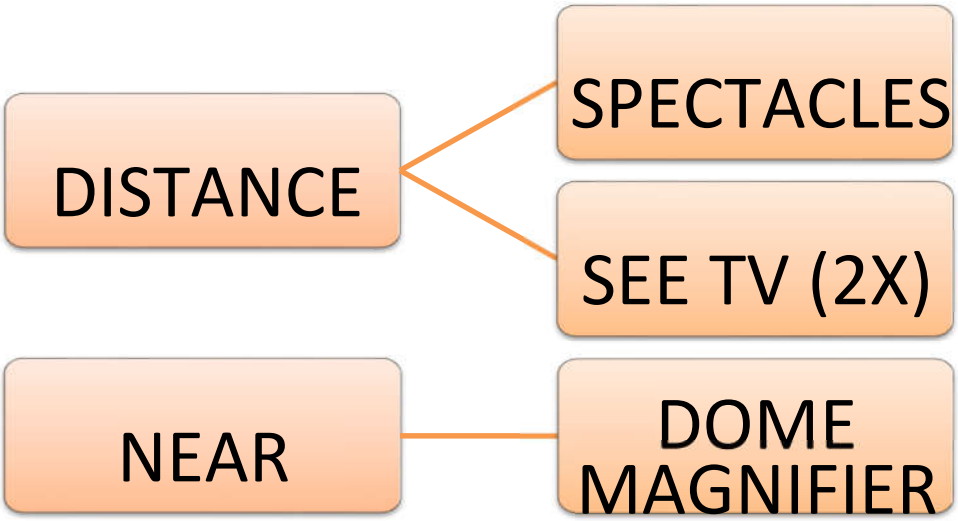


CHART 1: SHOWS MAXIMUM USAGE OF PRESCRIBED DEVICE



DISCUSSION:
In macular hole, small break is present in the macular area. The main cause is Trauma, Diabetic Retinopathy etc. It should be treated mainly by Vitrectomy. But here, central acuity is affected and in majority of cases, Low vision is created. In this study, best refractive correction is achieved by Stenopaeic slit. Spectacles and See TV (2x) magnification should be given for distance correction and for near, dome magnifier should be given of variable power with extra illumination as per the vision and need of the subject. This findings should be taken into consideration when prescribing low vision aids to the subjects of macular hole.

CONCLUSION:
In cases of macular hole, refractive correction should be done with stenopaeic slit. Spectacles and See TV (2x) should be prescribed for distance and dome magnifier of variable power with extra illumination as per need should be prescribed for near.

CONSENT:
Oral/ Written consent was taken from each and every subject and tertiary eye care centers.
ETHICAL APPROVAL:
Not applicable

REFERENCES:
[1]. Brad Bowling, (2016) Kanski's Clinical Ophthalmology E-Book: A Systematic Approach, 8TH Ed.
[2]. Sihota, Radhika Tandon, (2018), Parson's Diseases of the Eye, 22nd Ed.
[3]. Samar K. Basak (2009), Clinical Ophthalmology
[4]. A. C. Kooijman et al. (1994), Low Vision: Research and New Developments in Rehabilitation
[5]. G.C. Woo, (1986), Low Vision: Principles and Applications.
[6]. GS Kalaimathi et al., Pattern of visual disability and type of low vision aid rehabilitation in a tertiary eye care referral center: A descriptive study, Kerala journal of ophthalmology, 2017,29(1),pg – 22-25
[7]. Leat SJ, Fryer A, Rumney NJ. Outcome of low vision aid provision: The effectiveness of a low vision clinic. Optom Vis Sci 1994; 71:199-206.
[8]. Yong-Hoon JI, Park HJ, Oh SY. Clinical effects of low vision aids Korean. J Ophthalmol 1996; 13:52-6.