Acta Scientific Ophthalmology (ISSN: 2582-3191)

Volume 5 Issue 9 September 2022

Research Article

The Epidemiology of Low Vision in North West Bank Population: A Hospital-based Study

Anas L Yasin[1]*, Mohammad M Shehadeh[2], Mohamed M Khodeiry[1], Mohammad T Akkawi[2], Ammar Aghbar[2], Abdul-Raheem Abu Shanab[2], Haneen Nueirat[2] and Menatalla M Khodeiry[3]

[1]Bascom Palmer Eye Institute, University of Miami, Florida, USA

[2]An-Najah National University Hospital, Nablus, Palestine

[3]Hallam Street Hospital, West Bromwich, UK

***Corresponding Author:** Anas L Yasin, Bascom Palmer Eye Institute, University of Miami, Florida, USA.

Received: July 06, 2022

Published: August 11, 2022

Abstract

Aim: To assess the magnitude of low vision (LV) among ophthalmic patients of North West Bank (NWB) discrete.

Methods: Institution based cross section study was performed at An-Najah National University Hospital which is a large tertiary hospital serving NWB. A total of 3000 patients who were more than 18 years old were selected between June 2018 - June 2019. Comprehensive ophthalmic exam was done and patients with LV (best corrected visual acuity after any possible treatment < 6/18 (0.33) to >= LP) were studied.

Results: A total of 106 (3.5%) were having LV. 48 patients (45.3%) were males and 58 (54.7%) were females. Average age of LV patients was 67 years. Most LV patients had VA less than 0.05 (decimal) (3/60 Snellen). Diabetic retinopathy (DR) was the leading cause of LV and retina related causes compromised the vast majority of cases.

Conclusion: The magnitude of LV is high but most of its association are either avoidable or treatable. The role of screening and counseling programs and early diagnosis and treatment should be emphasized along with increase awareness of LV services and their importance to visually impaired persons.

Keywords: Low Vision; North West Bank; Cross Section Study; Diabetic Retinopathy

Introduction

Over decades, visual impairment (VI) remains a major health concern. Its effect extends beyond direct prohibition of personal independent functioning to include indirect socioeconomic, medical and financial costs [1]. VI is a wide term and includes both low vision (LV) and blindness (BL) [2]. According to the most recent data available to WHO, there are an estimated 124 million people in the world with LV. About a fourth of these would benefit from low vision services [3].

Although, there are numerous studies regarding prevalence of LV in different parts of world, its epidemiology is still complicated and reveals different results depending on communities being studied.

The focus of our study was patients with functional low vision (FLV) [4] who need referral to special rehabilitation centers. Unfortunately, LV data from Palestine are lacking, so this study was performed to give a glance about the prevalence and factors associated with LV in NEB population. This will aid in effective national planning of LV services and establishment of management programs for diseases responsible for LV.

Materials and Methods

An institution based cross sectional study was conducted at ophthalmology department at An-Najah National University Hospital (NNUH) in the period between June 2018 and June 2019.

NNUH is a large tertiary university hospital serving mainly North West Bank (NWB). Ophthalmology department serves approximately 12000 +/- 1000 patient per year, it provides outpatient and inpatient service in addition to hundreds of various ophthalmic procedures and surgeries in general ophthalmology and subspecialty areas which include oculoplastic surgery, uveitis, cornea and refractive surgeries, vitreoretinal surgeries, strabismus and pediatric ophthalmology. With 2% error of margin, 95% confidence interval and an estimated population size of 650000 18+ years old adults living in NWB [5], sample size was calculated to be 2400 patients but a total of 3000 were taken [6]. They were selected based on simple random sampling at time of registration that every 4th new patient was included. Consent form was given and clarified to patient before being signed.

Included patients must be >= 18 years old, cooperative, resident in NWB and have firm end diagnosis. Every patient was fully examined by a registered optometrist and ophthalmologist. Any necessary investigation was done based on patient examination. A data sheet was filled which included: patient's age, gender, uncorrected visual acuity (UCVA) for distant vision, best corrected visual acuity (BCVA) for distance, end diagnosis of patient's complain. Any patient who did not match inclusion criteria or had query end diagnosis was excluded from study. LV was defined as final BCVA (after refraction and treatment of any ocular disease) for distance < 6/18 (Snellen) or 0.33 (Decimal) but equal or better than light perception (LP) [7]. NWB was defined as province of Jenin, Nablus, Tulkarem, Qalqilya and Tubas cites [5].

The collected data was analyzed using Statistical Program of SPSS 20.

Results

A total of 3000 patients were examined, of them 106 (3.5%) patients were diagnosed with LV. 48 patients (45.3%) were males and 58 (54.7%) were females. The calculated prevalence of LV was [106/3000] * 1000 = 35/1000. Average age of LV patients was 67 years (Table 1). Most LV patients had visual acuity (VA) less than 0.05 (decimal) (3/60 Snellen) (Table 2).

Diabetic retinopathy (DR) was the leading cause of LV and retina related causes compromised the vast majority of cases (Table 3). Most cases of DR were related to persistent diabetic macular edema (DME), other causes are shown in figure 1.

Age group (Years)	Frequency	Percent %
18-40	2	1.9
41-60	33	31.1
>= 61	71	67
Total	106	100%

Table 1: Distribution of low vision patients according to age groups.

Visual acuity (Decimal)	Frequency	Percent %
0.3	9	8.5
0.2	20	18.9
0.15	8	7.5
0.1	23	21.7
0.05	20	18.9
Less than 0.05	26	24.5
Total	106	100

Table 2: Distribution of visual acuity among low vision patients.

Cause of low vision	Frequency	Percent %
Diabetic retinopathy	63	59.4
Age related macular degeneration (AMD)	18	17
Glaucoma	8	7.5
Corneal opacification	10	9.4

Table 3: Causes of low vision.

Study area	Year	Prevalence of FLV	Commonest cause
Sri Lanka [10]	2014	1%	Complication of cataract surgery
Pakistan [11]	2002	1.7%	Corneal conditions
India [12]	2002	1.05%	Retinal conditions
Brazil [13]	2003	2.6%	Posterior segment conditions
Jordan [14]	2015	Not available	Albinism and retinitis pigmentosa

Table 4: Epidemiology of functional low vision in different countries.

Figure 1: Distribution of diabetic retinopathy among low vison patients.

Discussion

The calculated prevalence of LV was 35/1000 (3.5%) among patients attending ophthalmology department at NNUH. A recent Palestinian study targeted community population aged more than 50 years living in west bank showed a 2.5 % prevalence of blindness and an 11.9 % of LV [8]. The number had raised significantly since 1984 study which showed an overall prevalence of LV of 6.8% [9]. This discrepancy is expected to be because our study adopted the WHO definition of functional low vision (FLV) [4] which deals with best corrected visual acuity after treatment of any underlying cause rather than presenting VA that was used to define LV in previous studies. Table 4 below shows the prevalence of FLV with its causes in different countries.

Diabetic retinopathy and Age-related macular degeneration were the leading causes of FLV. This may be the result of the ageing of the population combined with an increasing prevalence of diabetes mellitus (DM). However, estimates have placed prevalence of DM from a low of 10% to as high as 20.8% by 2020 which could be translated to increase in microvascular complications including diabetic retinopathy [15,16]. A study targeted north Africa and middle east (NAME) population expected and increase in LV and blindness attributable to DR, AMD and glaucoma with reduction in those related to cataract from 2015-2020 [17]. This surge in posterior segment disorders necessitates development of screening programs and management strategies, including availability of retinal imaging and posterior segment modalities of treatment such as laser, surgeries and various intravitreal injections. It should be emphasized that variations in prevalence of LV and its associations are largely dependent on regions under study, socioeconomic factors, what definition in use of for LV and target population whether it was community or institution based. So, no consensus can be reached regarding this health issue. Every community has its special considerations.

The availability of FLV epidemiological data in contrast to other LV data will help in planning of screening and counseling programs regarding avoidable and treatable causes and in development and expanding LV services which will be the only hope for these individuals to overcome their disability.

Conclusion

This study Shows high LV rate. Diabetic retinopathy and age-related macular degeneration were the leading causes and most affected individuals were above 60. This magnitude could be reduced if screening, prevention, and early diagnosis and management are implemented towards avoidable causes of LV. Importance of LV services should be enforced.

Conflict of Interest

No conflict of interest was declared by the authors.

Bibliography

1. Frick KD and Foster A. "The magnitude and cost of global blindness: an increasing problem that can be alleviated". *American Journal of Ophthalmology* 135 (2003): 471-476.
2. World Health Organization. "International statistical classification of diseases, injuries and causes of death, tenth revision". Geneva (1993).
3. https://www.who.int/blindness/causes/priority/en/index4.html
4. World Health Organization. "The Management of Low Vision in Children. Report of a WHO Consultation: Bangkok, July 1992". Geneva, Switzerland: WHO (1993): PBL/93.27.
5. http://www.pcbs.gov.ps/pcbs_2012/Publications_AR.aspx
6. http://www.raosoft.com/samplesize.html
7. https://www.who.int/blindness/causes/priority/en/index4.html
8. Chiang F., *et al*. "Rapid assessment of avoidable blindness in the Occupied Palestinian Territories". *PLoS One* 5.7 (2010): e11854.

9. Thomson I M and Chumbley L C. "Eye disease in the West Bank and Gaza strip". *British Journal of Ophthalmology* 68.8 (1984): 598-602.

10. Gilbert C., *et al*. "Prevalence, causes and magnitude of functional low vision in Sri Lanka: results from a national population based survey". *Ceylon Medical Journal* 63.5 (2018): s40-s44.

11. Shah SP., *et al*. "Prevalence and causes of functional low vision and implications for services: the Pakistan National Blindness and Visual Impairment Survey". *Investigative Ophthalmology and Visual Science* 49 (2008): 887-893.

12. Dandona R., *et al*. "Planning low vision services in India: a population-based perspective". *Ophthalmology* 109 (2002): 1871-1878.

13. Limburg H., *et al*. "Functional low vision in adults from Latin America: findings from population-based surveys in 15 countries". *Revista Panamericana de Salud Pública* 37 (2015): 371-378.

14. Bakkar MM., *et al*. "Clinical characteristics and causes of visual impairment in a low vision clinic in northern Jordan". *Clinical Ophthalmology* 12 (2018): 631-637.

15. Abu-Rmeileh NME., *et al*. "Preventing type 2 diabetes among Palestinians: comparing five future policy scenarios". *BMJ Open* 3 (2013): 1-6.

16. World Diabetes Foundation. "Clinical audit of diabetes care among Palestine refugees" (2012).

17. Kahloun R., *et al*. "Prevalence and causes of vision loss in North Africa and Middle East in 2015: magnitude, temporal trends and projections". *British Journal of Ophthalmology* (2018): bjophthalmol-2018-312068.