



Research Article

Epidemiological and Clinical Aspects of Blinding Diseases in The National Teaching Hospital (Cnhu-Hkm) in Cotonou

Alamou S, Yehouessi L, Bra'eyatcha Bimingo N, Sounouvou I Tchabi S and Doutetien C

Abstract

Objective: To study the epidemiological and clinical aspects of blinding diseases.

Method: The study was retrospective, descriptive and analytical. It involved all patients with blindness and / or severe visual impairment and who came to consult in the Unit of Ophthalmology of the National Teaching Hospital from 1st March 2011 to 28 February 2013.

Results: Among the 814 patients selected, 569 were suffering from blindness (69%) and 245 of severe visual loss (31%). The most affected were aged 50-59 years and 60-69 years with 247 cases for blindness (38.14%) and 124 cases for severe visual loss (50.21%). The sex ratio was 1.32. Retirees were the largest group of about 360; 44.22%. The other group with secondary education were the most numerous (36.61%). 102 and 114 patients respectively 17% and 19% had a history of glaucoma and cataracts. 33 patients had family history of glaucoma (4.05%) and 30 patients with a family history of blindness (3.69%). Ocular involvement was bilateral in 550 patients (67.57%). The crystalline (39.82%) and the optic nerve (17.78%) were the main anatomical sites of lesions found.

Conclusion: To reduce the incidence of blindness and severe visual handicaps, it is important to study and improve the treatment of eye diseases.

Keywords

Blindness; Severe visual impairment; Visual impairment; Cataracts; Glaucoma

Introduction

The eye is the honored organ for outside world relationship. Its loss is an obsession for both the patient and the ophthalmologist. The average prevalence of blindness in the world in 1990 was estimated at 0.7% [1]. In sub-Saharan Africa, it was estimated at 1.4% [2]. The blindness and severe visual loss constitute ocular major problems in developing countries especially in their extent and severity.

In Benin, an epidemiological survey conducted in 1990 by the WHO [3] assessed the prevalence of blindness to 0.63%. This rate up

*Corresponding author: Alamou Soulé, Department of Ophthalmology, National Teaching Hospital De la Commune East, Cotonou Benin, Tel: 97 13 69 86; E-mail: s_alamou@yahoo.fr

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to a quarter of a century, it seemed appropriate to update the data by studying the epidemiological and clinical aspects of blinding diseases in the department of ophthalmology in the National Teaching Hospital of Cotonou.

Method

It study was a retrospective, descriptive and analytical extending over three years from 1st March 2011 to 28 February 2013 and completed in the department of ophthalmology in the National Teaching Hospital of Cotonou. It took into account all patients consulted or been hospitalized during the study period for severe visual loss or blindness.

According to the WHO's classification, blindness was defined as visual acuity of less than 1 / 20th and severe visual impairment in visual acuity between 1 / 20th and 1 / 10th [4]. The variables studied were demographic (age, sex, socio-professional activity, education level) and clinical (complaints, history, visual, laterality of disability, anatomical location). Data were analyzed using the software Epi Data version 3.1 and STATA 12.0. The Chi² test was used for comparison of the variables and the significance level was p<0.05.

Results

Epidemiological aspects

Frequency: Among the 8835 patients consulted during the study period, 814 were concerned, that is a proportion of 9.21%. Blindness represented 569 cases (6.44%) and severe visual loss 245 cases (2.77%).

Age: Table 1 shows the distribution of patients according to age groups expressed in years. Patients ranged in age from 06 months to 100 years with a mean age of 49 ± 20 years. The average age for men was 47.8 years and 50.9 years for women.

Sexe : La Figure 1 montre la répartition des patients selon le sexe Men were the most observed, 464 cases (57%). The sex ratio was 1.32.

Socio-professional activity: Table 2 summarizes the distribution of subjects according to their socio-professional activity. Table 2 distribution of subjects according to their socio-professional activity (see on page below) Retirees were the largest group of 360 (44.22%); then came followed by officials (26.54%).

Level of education: Table 3 summarizes the distribution of subjects according to their intellectual level.

Table 1: Distribution of patients according to age groups in years.

| | Number | Percentage |
|--------------|------------|--------------|
| <20 | 69 | 8,48 |
| 20-29 | 97 | 11,92 |
| 30-39 | 93 | 11,43 |
| 40-49 | 95 | 11,67 |
| 50-59 | 173 | 21,25 |
| 60-69 | 157 | 19,29 |
| ≥ 70 | 130 | 15,96 |
| TOTAL | 814 | 100 |

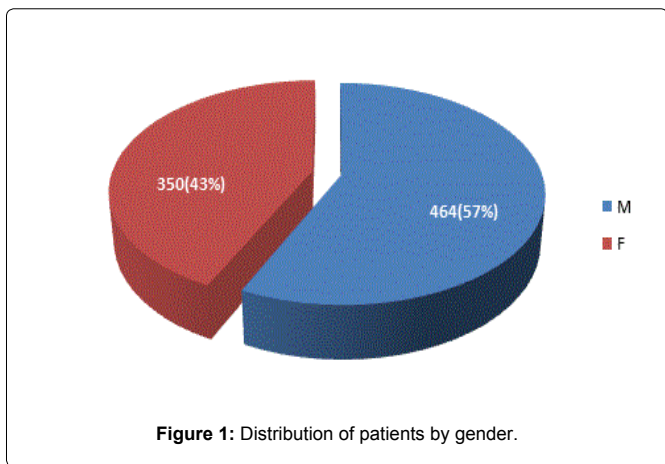


Figure 1: Distribution of patients by gender.

Table 2: Distribution of subjects according to their socio-professional activity.

| | Number | Percentage |
|-----------------|--------|------------|
| PUPILS/STUDENTS | 104 | 12,78 |
| OFFICIALS | 216 | 26,54 |
| CRAFTMEN | 19 | 2,33 |
| TRADERS | 83 | 10,20 |
| RETIREEES | 360 | 44,22 |
| NOT PRECISED | 32 | 3,93 |
| TOTAL | 814 | 100 |

Table 3: Distribution of subjects according to the educational level.

| | Number | Percentage |
|-----------------|--------|------------|
| ILLITERATE | 180 | 22,11 |
| PRIMARY LEVEL | 196 | 24,08 |
| SECONDARY LEVEL | 298 | 36,61 |
| HIGHER LEVEL | 126 | 15,48 |
| NOT PRECISED | 14 | 1,72 |
| TOTAL | 814 | 100 |

Subjects with a higher intellectual level were the most numerous (36.61%).

Type of visual impairment: Blindness was mostly represented with 569 cases (69%) against 245 cases for severe visual loss (31%).

Visual impairment and age: Table 4 notes the distribution of visual impairment based on age.

Spearman chi 2=4.502 p=0.0354 Severe visual loss was higher in the age groups 50-69 years of blindness (P=0.035)

Visual impairment and sex: Table 5 shows the distribution of blindness and severe visual loss by gender.

According to the study, men were more affected by blindness (Spearman chi 2=3.952 p=0.042) than by the severe visual loss (Spearman chi 2=3.847 p=0.049).

Clinical aspects

Functional signs: Figure 2 summarizes the functional signs of patients. Visual decline was the main complaint of patients in 645 cases (79.24%). However, the same patient could present several functional signs.

Antecedents

Eye history: Figure 3 shows the distribution of subjects with

Table 4: Distribution of type of visual impairment based on age ranges expressed in years.

| | Blindness | | Severe BAV | |
|-------|-----------|-------|------------|-------|
| | Number | % | Number | % |
| <20 | 43 | 7,56 | 20 | 8,16 |
| 20-29 | 71 | 12,48 | 21 | 8,57 |
| 30-39 | 69 | 12,13 | 21 | 8,57 |
| 40-49 | 69 | 12,13 | 22 | 8,98 |
| 50-59 | 115 | 20,21 | 62 | 25,31 |
| 60-69 | 102 | 17,93 | 61 | 24,90 |
| ≥ 70 | 100 | 17,56 | 38 | 15,51 |
| TOTAL | 569 | 100 | 245 | 100 |

Table 5: Distribution of blindness and severe visual loss by gender.

| | Male | | Female | | p |
|------------|--------|-------|--------|-------|-------|
| | Number | % | Number | % | |
| BLINDNESS | 341 | 59,93 | 228 | 40,07 | 0,042 |
| SEVERE BAV | 123 | 50,21 | 122 | 49,79 | 0,049 |
| TOTAL | 569 | 100 | 245 | 100 | |

blindness or severe visual impairment based on ophthalmic history. 102 and 114 patients, respectively are 13% and 14% had ophthalmologic history of glaucoma and cataracts. As medical history, blood pressure leads on top with 253 cases (31.08%) followed by diabetes with 107 cases (13.14%). 42 cases of hemoglobinopathies (5.16%) were noted. As for surgical history, 79 patients (9.71%) underwent phacoemulsification and 9 patients (1.11%) underwent trabeculectomy. Family history of glaucoma and blindness were less noted (4.05% and 3.69%).

Laterality of visual impairment: Ocular involvement was bilateral in 550 patients or 67.57% of cases. It was concerned only the left eye in 19.41% of cases and the right eye in 13.02% of cases.

Laterality of visual impairment and age: Table 6 shows the distribution of the indicated eye in terms of age groups expressed in years. Table 6 Distribution of the affected eye in terms of age groups in years. The proportion of patients in both eyes appears higher in groups of 60-69 years (76.4%) Spearman chi 2=4.954 p=0.032 and 70 years and over (85.04%) Spearman chi 2=4.850 p=0.035.

Laterality of visual impairment and gender: eye disease were more frequent in men with respectively 64 cases (60.37%) of 106 in the right eye, 87 cases (55.06%) of 158 in the left eye and 313 cases (56.90%) out of 550 in both eyes (Spearman chi 2=4.542 p=0.0442).

Laterality and the type of visual impairment: Whatever the type of visual impairment, the achievement was mainly bilateral, interesting both eyes 377 cases (67.56%) of 558 to blindness and 173 cases (67.57%) on 256 for severe visual loss (Spearman chi 2=4.110 p=0.0477).

Anatomical eye injuries problems localization: Eye injuries problems of the anterior segment were dominated predominated by crystalline lens opacification in 248 cases (51.77%) to the right and 243 cases (47.45%) on the left. The ocular hypertension was identified in 62 cases (12.94%) on the right and in 58 cases (11.37%) on the left. Finally, corneal damages were noted in 57 cases (11.91%) on the right and 61 cases (11.96%) on the left.

As for the posterior segment eye injuries problems, pathological peripapillary excavations predominated, with 126 cases (25.15%) on the right and 128 cases (25.93%) on the left (p=0.0221). The total Total optic atrophy was ranked second (32 cases or 6.39% and 5.98%

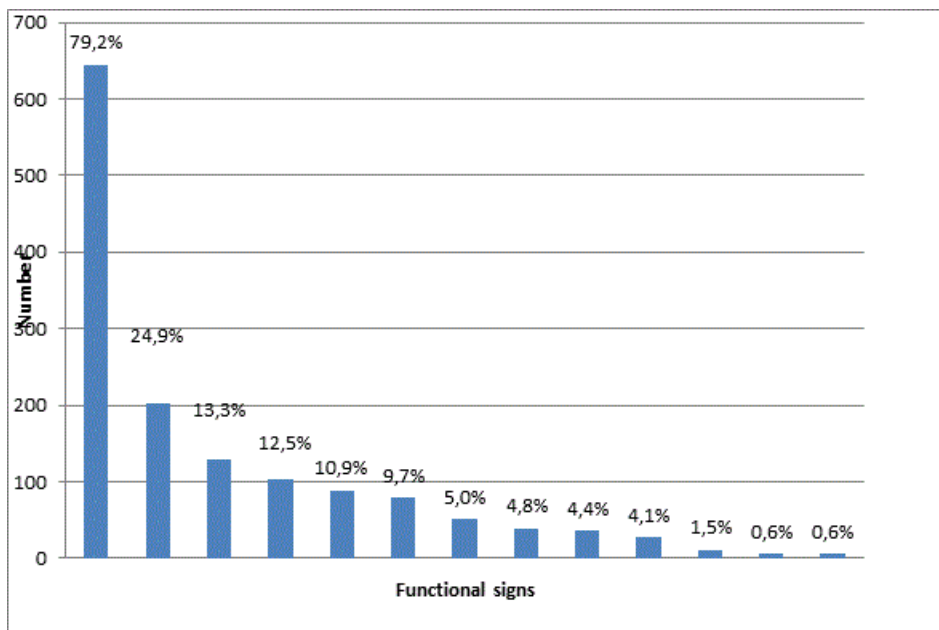


Figure 2: Distribution of patients according to functional signs.

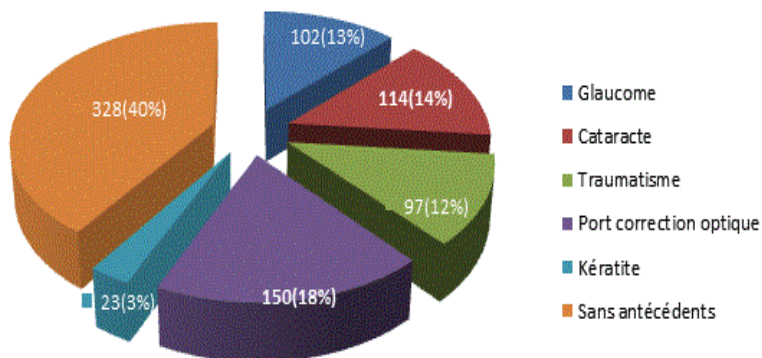


Figure 3: Distribution of subjects according to ophthalmic history.

Table 6: Distribution of the affected eye in terms of age groups in years.

| | OD | OG | ODG | Total |
|-------|-------|-------|-------|-------|
| <20 | 12 | 16 | 41 | 69 |
| | 17.39 | 23.19 | 59.42 | 100 |
| 20-29 | 20 | 26 | 51 | 97 |
| | 20.62 | 26.8 | 52.58 | 100 |
| 30-39 | 16 | 20 | 57 | 93 |
| | 17.2 | 21.51 | 61.29 | 100 |
| 40-49 | 14 | 33 | 49 | 96 |
| | 14.74 | 34.74 | 50.53 | 100 |
| 50-59 | 21 | 30 | 123 | 174 |
| | 12.14 | 17.34 | 70.52 | 100 |
| 60-69 | 13 | 24 | 121 | 158 |
| | 8.28 | 15.29 | 76.43 | 100 |
| ≥70 | 10 | 9 | 108 | 127 |
| | 7.87 | 7.09 | 85.04 | 100 |
| TOTAL | 106 | 158 | 550 | 814 |
| | 13.07 | 19.48 | 67.45 | 100 |

or 28 cases respectively right and left). At the retinal surface, macular drusen predominated, with 36 cases (7.19%) to in the right eye and 36 cases (7.30%) on in the left eye followed by lipid exudates with 30 cases (5.98%) on in the right and 28 cases (5.68%) on in the left.

Discussion

Epidemiologically

The frequency of blindness in this study was 6.4% compared to all pathologies. On the contrary, by Suman et al. [5] in Nepal in 2011 and Omgbwa Eballé et al. [6] in Mali in 2005 have identified lower frequencies respectively of 0.43% and 0.9%. For severe visual loss, the frequency of 2.77% of this series was higher than that of Wadud et al. [7] Bangladesh (1.6%). The mean age was 49 ± 20 years and the median was 53 years.

This result differs from that of Balo et al. [8] in Togo in 2000 who noticed a lower age of 28.02 years. On the contrary, Waked et al. [9] in Lebanon in 2007 reported a significantly higher average age 77,

74 years. The difference is that their study had been carried out in retirement houses. The age groups of 50-59 years and 60-69 years were most represented in our study with 21, 25% and 19, 29% of cases. This is explained by the high frequency of degenerative diseases associated with aging (cataracts, glaucoma) and because of the improvement of the life expectancy in Benin. The male prevalence with a sex ratio of 1.32 could be related to men's financial power to consult more often. This male trend was noted by Balo et al. [8] in Togo in 2000, Bella Hiag et al. [10] in Cameroon in 2010 and Cohen et al. [11] in France in 2000, who respectively reported a sex ratio of 1.2, 1.5 and 1.08. On the contrary, Omgbwa Eballé et al. [6] in Mali in 2005, had noted a female predominance with a female relative / man of 1.15. Pensioners were the most affected by blindness and severe visual impairment group (44.22%). This high proportion of retirees is justified by the fact that they were receiving administrative support, enabling them to part provide their care. In addition, because of their advanced age, they would be more exposed to degenerative disorders of senescence.

In this series, individuals with a high intellectual (educational) level were the most numerous (36.61%). These results are conceived as most of the patients were active or retired officials.

However, a survey conducted in Benin on vulnerable people in 2003 [12] showed that 75.9% of blind people were illiterate; 14.4% of primary school level; 7.9% of secondary school level and 1.6% higher.

This difference in results is linked to the specificity of the target in the last survey.

In terms of visual impairment, blindness was 69%. This result would disclose on the one hand, inadequate specialized infrastructure and specialists in ophthalmology and secondly, the population inaccessibility to eye health care either because of ignorance, negligence or low income. The result is that patients consult at an advanced stage of their disease. This frequency was higher than that obtained by Waked et al. [9] in Lebanon in 2006 (22.4%) in a general population. Domngang et al. [13] in Cameroon in 2010, in their study in a school of visually impaired had noted a rate of 87.5%. Overall, for many epidemiological studies in different developing countries, the prevalence of blindness is increasingly high [9,14].

About the severe visual loss, its frequency in this study was 31%. Zaouali et al. [15] in Tunisia in 2009 in a child population, it had been recorded a much higher rate of 75.6%.

Considering the visual disability and the age, the most represented portions in blindness and severe visual loss were those subjects between 50-59 years and 60-69 years respectively 20.21% and 17.93% of cases blindness and 25.31% and 24.90% for severe visual loss.

There is a causal relationship between the high frequency of degenerative diseases and age beyond 50 years. Witness the index of significance ($p=0.03$). Our results are consistent with Balo et al. [8] in a study in southern Togo in 2000; Indeed, they noted that bilateral and unilateral blindness especially touched the age groups 55 years and older (27.07%). It was the same for severe visual loss (11.94%). Regarding Visual impairment and gender, men were more affected by blindness and severe visual loss respectively 59.93% and 50.21% ($p=0.042$; $p=0.049$). Indeed, the male population was more representative (predominant). But Waked et al. [9] in Lebanon in 2007 did not identify any difference between the 2 groups after adjustment for age. By cons, Balo et al. [8] noted a prevalence of bilateral blindness higher in women than in men or 3.43% against

1.57%. But the unilateral blindness was slightly higher among men (2.91% against 2.36%).

On clinical side the majority of patients had consulted for visual decline (79.24%), Traore et al. [16] in Bamako in 2006 had recorded a lower rate (40%). Family history of blindness was 3.69%. Hypertension and diabetes were the most reported medical history with 31.08% and 13.14% respectively. This is related to the fact that these are pathologies of age the most common adult.

The phacoemulsification was the most common surgical history (9.70%) due to the fact that it was and is eye surgery most commonly performed in ophthalmology Phacoemulsification was the common surgical history (9.70%) and the most common eye surgery in Benin and the West African region.

For laterality of visual impairment, ocular involvement was bilateral in 67.57% of cases but because of bilateral asymmetry of blinding conditions in the elderly. Sidedness of lower rates have been reported in several studies; Balo et al. [8] and Omgbwa Eballé et al. [6] noted blindness respectively 2.47% and 1.15% and for severe visual loss by 34% and 17.5%.

The proportion of patients in both eyes was higher in the age groups beyond 50-59 years, attesting to the high incidence of potentially blinding eye disease in these age groups.

The role of age as a major factor in declining severe vision and blindness was noted by Domngang et al. [13] Similarly Eballé et al. [14] in Cameroon in 2011 confirmed the dominance of the bilateral nature of blindness after 60 years.

Conclusion

Blindness and severe visual loss are both visual impairments that affect people of all ages. Our study revealed a male prevalence beyond their sixties. The disease was bilateral in over half of the cases. The lens and optic nerve were the main anatomical sites that were involved. Early detection and proper management of eye diseases are necessary to reduce the frequency of preventable causes of blindness and severe visual loss.

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Author Affiliation

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