PREVALENCE AND CAUSES OF BLINDNESS IN PATIENTS AGED 15 AND OVER AT THE GAROUA REGIONAL HOSPITAL IN NORTHERN CAMEROON.

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SUMMARY

INTRODUCTION: In Cameroun, a central African country, the prevalence of blindness is estimated at 1% by the World health Organization (WHO). The aim of our study was to determine the frequency of blindness and the pathologies that cause it in our environment.

***METHODOLOGY:** This was a descriptive and retrospective study from June 2018 to November 2022.For the 540 patient's files registered as blind and consulted at the ophthalmology department of the Garoua Regional Hospital during this period, we recruited for the analyses 167 patients. We did a consecutive and exhaustive sampling. The variables studied are age, sex, occupation, place of residence, the type of blindness, investigations performed (ocular ultrasound for difficult fundoscopies, X-ray and/or CT scan of the orbit following ocular injury). Data was collected and analyzed using IBM SPSS version 23 software.*

***RESULTS:** The prevalence of blindness at the Garoua Regional Hospital was 3.2% (95% confidence interval [CI]: 3,0 - 3,5%.). The mean age was 52.8 ± 18.3 years. The sex ratio was 1.1. Jobless patients represented 43.1%, 17.3% had an informal occupation and 12.3% were farmers. Monocular blindness occurred in 59.3% of patients and binocular blindness in 49.7%. Cataract was the most frequent cause of blindness (50.9%), followed by ocular injury (16.2%), glaucoma (11.4%). Senile cataracts represented 73.7% of cataracts.*

***CONCLUSION:** Blindness is frequent at the Garoua Regional Hospital. Senile cataract is the most frequent cause.*

Keywords: *Blindness-Prevalence-Causes.*

INTRODUCTION:

In 2002, it was estimated that there were more than 161 million people with visual impairments in the world, of whom 37 million were blind (1). Cataract is responsible for half of blindness. Blindness due to cataract in Africa and Asia is increasing in number due to the growing number of elderly people and the insufficient human and material resources necessary for its treatment (1). The prevalence of blindness is estimated by the World Health Organization (WHO) at 1% (1). Global awareness of the scourge of blindness has led the World Health Organization (WHO) and the International Agency for Prevention of Blindness (IAPB) to establish a global initiative for the elimination of blindness. avoidable blindness: "Vision 2020: the right to sight" (2).

In South-West Cameroon, the prevalence is around 1% in urban areas (Limbe) and 1.6% (Muyuka) (3). In Douala, the hospital prevalence estimated by Omgbwa et al. in 2011 is 3.55% (4). The main causes of blindness in Africa are cataract, trachoma (and corneal blindness), glaucoma and onchocerciasis (2). Other conditions posing a public health problem are represented by vitamin A deficiency, measles, neonatal conjunctivitis, refractive disorders, trauma and ocular lesions from acquired immunodeficiency syndrome (2). Blindness has a strong impact psycho-socio-economic on affected people(2). For more than two decades, a real craze for humanitarian missions has appeared in sub-Saharan Africa, particularly for the treatment of cataracts (2).

We conducted a retrospective descriptive study based on the files of patients aged 15 and over who consulted the ophthalmology department of the Garoua Regional Hospital (HRG) from 2018 to 2022 in order to determine the frequency of blindness and the pathologies causing it in our environment.

MATERIAL AND METHOD:

Study setting: the study was carried out in the ophthalmology department of the Garoua Regional Hospital (HRG). HRG is a third category hospital and second level of reference in the health pyramid in Cameroon. It is located in the heart of the town of Garoua in North Cameroon. The HRG ophthalmology department is made up of two ophthalmologists, two senior ophthalmology technicians and two nursing assistants. It is a service where medical consultations, ophthalmological surgeries and ophthalmological explorations are carried out. This service regularly sees several cataract surgery campaigns organized by foreign teams.

Type of study: This is a retrospective and descriptive study running from May 2018 to November 2022 in the ophthalmology department of the HRG.

Study participants: We identified the patients recorded in the consultation register of the HRG ophthalmology department during the study period. Then we collected data from all patients aged 15 and over whose records were found and the diagnosis of blindness was made.

Study design: The sample size was calculated by the Open Epi software considering the population of Garoua at 369,882 inhabitants in 2023 according to a review of the world population of 2023, a prevalence of blindness at 1 .4% for a confidence level of 99.99%: The minimum sample size is 66.

Blindness was defined as the best corrected visual acuity of the affected eye less than 1/20 (WHO definition). Blindness is considered monocular if only one eye is affected and binocular if both eyes are affected.

The complete ophthalmological examination is carried out as follows: measuring distance and near visual acuity after simple objective refraction for patients aged 40 and over. For those under 40 years of age, a refraction after cycloplegia with cyclopentolate 0.5% is carried out. The intraocular pressure of each eye is measured using the Icare rebound tonometer, and the anterior segment is then examined using a slit lamp. Finally, an examination of the fundus of the eye with a 90 Diopter VOLK brand lens is carried out. When necessary, the examination is supplemented by a paraclinical assessment: an x-ray of the orbits or a CT scan of the orbits for cases of trauma or an ocular ultrasound when the media are not transparent to carry out a fundus examination.

We included in our study:

- All patients aged 15 and over who had had a complete ophthalmological examination,
- a diagnosis of blindness made and the cause found,
-patients whose file was found in our archives.

We excluded:

-Patients under 15 years of age who were blind,
- patients whose files were incomplete,
-patients whose files we could not find.

Data analysis: the data collected were recorded and analyzed using IBM SPSS version 23 software. The Kolmogorov-Smirnov test was used to confirm the normal distribution of our sample. Categorical data were analyzed using the chi-square test with 95% confidence intervals (CI). Student's t test was used to compare normally distributed continuous variables between the monocular and binocular blindness groups. The Pearson correlation test was used to calculate the correlation coefficients and their statistical significance. A p-value <0.05 was considered statistically significant.

Funding: this study did not benefit from any financial support.

Ethics: this is a study which received research and publication authorization from the Garoua Regional Hospital. It was done in compliance with national and international conventions (5).

RESULTS

Sociodemographic characteristics: A total of 16,270 patients were consulted during the study period. The diagnosis of blindness was made in 540 patients. The files of 167 patients were found and considered complete. The prevalence of blindness is estimated at 3.3% (95% CI: 3.0-3.6%). The average age is 53.2 years ±18.3 years. The sex ratio is 1.1.

Table: I Distribution according to profession of patients

Occupation	N	%
Farmer	20	12.0
Housewife/unemployed	73	43.7
Retired civil servant	13	7.8
Informal	38	23,8
Pupil/student	10	6.0
Driver	5	3.0
Teacher	3	1.8
Active civil servant	5	3.0
Total	167	100

The patients generally came from the rural area 106 or 63.5% compared to 61 or 36.5% coming from the urban area.

Clinical and paraclinical characteristics:

Monocular blindness was found in 99 patients or 59.3% and binocular blindness in 68 patients or 49.7%.

Table: II Distribution according to causes of blindness

Causes	N	%
Cataract	85	50.9
Glaucoma	19	11.4
Corneal abscess		
Eye trauma	8	4.8
Eye burn		
Complication of cataract surgery		
Others cause	27	16.2
Total	2	1.2
	4	2.4
	22	13.2
	167	100.0

Cataract was the most common cause of blindness in our environment (85 patients or 50.9%), followed by ocular trauma (27 patients or 16.2%), glaucoma (19 patients or 11.4%). Regarding the aetiologies of cataracts, senile cataracts were found in 51 patients or 43.7% followed by post-traumatic cataracts (12 patients or 14.1%) and congenital cataracts (9 patients or 5.4%). Cataract causes bilateral blindness in 48 patients, or 56.4%, and glaucoma causes 52.6% of bilateral blindness. Public road accidents were the cause of eye trauma in 12 patients or 7.2%, followed by assaults in 11 patients or 6.6%.

Table: III Aetiologies of cataracts

Aetiologies of cataracts	N	%
Senile	51	43.7
Post traumatic	13	15.3
Congenital	12	14.1
Others (cataract on diabetes, cataract after taking long-term corticosteroids)	9	10.6
Total	85	100%

Table: IV Causes of eye trauma

Causes of eye trauma	N	%	Fréquence (%)
Public road accident	**12**	**44.4**	**39**
Assaults	**11**	**40.7**	**1**
Others (work accident, domestic violence, etc.)	**4**	**14.8**	**0,0**
Total	**27**	**10**	

Regarding factors associated with laterality of blindness

The laterality of blindness was associated with age (p ‹0.05). We did not find any association between the laterality of blindness and place of residence, sex, causes of blindness and profession.

DISCUSSION

The prevalence of blindness at the Garoua Regional Hospital is 3.2% (95% CI). A hospital study by Omgbwa et al found a hospital prevalence of blindness of 3.5%, similar to our results (4). A higher prevalence was found in a hospital study in Mali in Bamako (5.8%), this could be explained by the fact of the higher cases in this Sahelian zone of trachomas (6). l The average age in our study was 53.2 years old. Omgbwa et al in Douala found a lower age at 49.9 years probably because the study carried out by them included children and adults in a larger sample (4). Cataract is described as a cause of blindness in our environment in 85 patients or 50.9%. Moussala et al in the West region of Cameroon reported 50% of cases of blindness linked to cataracts (7). Oye et al in the rural area of the Muyuka District in South-West Cameroon found a prevalence of blindness secondary to cataract of 65% (3). Manal et al in 2019, in Nigeria noted a prevalence of blindness due to cataract of 70% (8). This high prevalence could be explained by the fact that the study was carried out on a larger population of 466,578 people aged 50 and over with a higher prevalence of blindness at 5.6%. Eye trauma represents the second cause of blindness. This can be explained by the fact that the most used and available means of public transport is the motorcycle and most people who use it do not wear a helmet. this means of public transport encourages an increase in attacks and insecurity in the city. Koki et al in 2008 in a hospital study found a frequency of blindness secondary to ocular trauma at 16.28% (9).

Glaucoma comes in third place with 11.2%. Unlike blindness linked to cataracts which is reversible by surgery in most cases, glaucoma is a real problem due to late diagnosis and the irreversibility of the lesions. In Cameroon, a hospital-based glaucoma study reported a prevalence of bilateral blindness of 34.2% in a glaucomatous population observed at the first consultation (10). The patients are mostly of modest social class, which can explain the late consultations and the difficulties in receiving care which could be due to limited financial means or ignorance.

CONCLUSION:

Blindness is common in hospitals at the Garoua Regional Hospital. Senile cataract is the most common cause. Thus, we recommend: National training of more ophthalmologists, retraining of local ophthalmologists on new cataract surgery techniques, multiplication of cataract screening and surgery campaigns and awareness of populations on the pathology.

Conflicts of interest

The authors declare no conflict of interest

Tables:

Table I: Distribution according to occupation of blindness

Table II: Distribution according to aetiologies of blindness

Table III: Causes of eye trauma

Table IV: Aetiologies of cataracts

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