

Anatomical and Functional Results of Cataract Surgery Performed During a Campaign Organized by the National Program for the Fight Against Blindness at the Health Center of Kobeni - Mauritania From 1-6/12/2024: About 127

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ABSTRACT

Cataract is a major public health problem, particularly in developing countries and disadvantaged regions of the world, where the share of blindness due to cataract represents more than 50% of all eye conditions, compared to 5% in industrialized countries. Cataract also has the characteristic of being curable through simple surgery with spectacular results; however, effectively combating blindness from cataract requires not only an increase in the number of surgeries but also a specific monitoring of the quality of the operations.

This prospective study with a descriptive aim was conducted on 127 eyes operated for cataract during a surgical campaign organized by the PNLC in collaboration with the Qatari CR at the health center of Kobeni-Mauritania; with the goal of: Evaluating the functional results of cataract surgery during this campaign and the causes of poor outcomes. Data were collected using a standardized survey form, then entered using Microsoft Word 2016 and analyzed using IBM® SPSS® Statistics 23.0 and Microsoft Excel 2016.

We recruited and followed 127 eyes operated on for cataract. The average age of the patients was 68.5 years (40-104 years); the female sex was predominant with a sex ratio of 1.39 in favor of women. Comorbidities were present in 7.1%, and perioperative complications were present in 6.29% of patients, dominated by posterior capsule ruptures at 4.72%. We obtained 85.039% good visual outcomes; 14.96% of borderline results, according to recommendations; our functional results are below the WHO guidelines which recommend a rate of good functional outcomes (i.e., BCVA >= 3/10) greater than or equal to 90%.

Among the identified causes of poor outcomes: post-operative ametropia induced by surgery or the placement of an unsuitable implant and corneal dystrophy.

Keywords

Cataract, Surgery, Campaign, Mauritania.

Introduction

Cataract constitutes a major public health problem, particularly in developing countries and disadvantaged regions of the world, where

the proportion of blindness due to cataract accounts for more than 50% of all eye diseases, compared to 5% in industrialized countries [1]. According to the "VISION 2020: the right to sight" initiative launched in Bamako for Francophone Africa in 2000, blindness due to cataract represents 60% of cases of blindness in the sub-region, affecting about 1.2 million people, and the annual number

of new cataract cases is estimated to be 300,000 [2]. According to the WHO, Sub-Saharan Africa shows the most alarming situation as 1.2% of the population is affected by visual impairment, which is five times the estimated proportion in industrialized countries. Cataract also has the characteristic of being curable through simple surgery with spectacular results [3].

Despite the considerable efforts made by many developing countries through their blindness prevention programs, the rate of cataract surgery in the sub-region remains very low, estimated at 200-400 operations per 1 million inhabitants, compared to 3,500-5,000 in industrialized countries. And the global number of blind and visually impaired individuals appears to continue to grow, primarily due to population increase and aging [4].

According to the vision of the global initiative for the elimination of avoidable and/or curable blindness, there is a need for: improved surgical techniques, an increase in the number of cataract surgeries, and specific monitoring of the quality of the operations.

Effectively fighting cataract blindness therefore requires not only an increase in the number of surgeries but also specific monitoring of the quality of the operations; because the good surgical results in developing countries [5,6] reported by recent surveys are lower than those in developed countries; hence the importance of specific monitoring of the quality of the operations.

It is in this perspective that this study comes; which aims to evaluate the functional outcomes of adult cataract surgery during a cataract surgery campaign organized by the PNLC in collaboration with CR Qatari at the Kobeni Health Center (Moughataa of Kobeni-Mauritania).

Patients and Methods

Patients

This is a descriptive prospective study involving 127 eyes that underwent cataract surgery during a cataract surgery campaign conducted by the PNLC in collaboration with the Qatari CR at the health center of Kobeni-Wilaya of Hodh Garbi in 2025. All patients received standard posterior chamber implants ranging from 20 to 21 diopters, due to the lack of biometrics.

The variables studied were age, sex, visual acuity before and after surgery, and perioperative and postoperative complications. Data were collected using a standardized survey form.

Methods

Inclusion Criteria

- Patients who underwent cataract surgery during the campaign and were followed postoperatively until the thirtieth day.
- Adult consenting patients for whom the indication for cataract surgery was made.

Non-inclusion Criteria

- Patients lost to follow-up during the postoperative period.
- Non-consenting patients.

- Patients with traumatic cataract and/or other conditions that could compromise the functional outcome of the surgery.

Data Analysis

Data analysis was conducted using IBM® SPSS® Statistics 23.0 and Microsoft Excel 2016. Data entry was done on Microsoft Word 2016. The correlation between variables was assessed using the Chi-square statistical test (χ^2). This correlation was considered statistically significant for any p-value < 0.05.

Results

Prevalence

In our series, we note 127 patients with cataracts out of a total of 1,393 consultations during the study period, giving a prevalence of 9.1%.

Gender

We found 53 men (41.7%) and 74 women (58.3%), resulting in a sex ratio of 1.39 in favor of women.

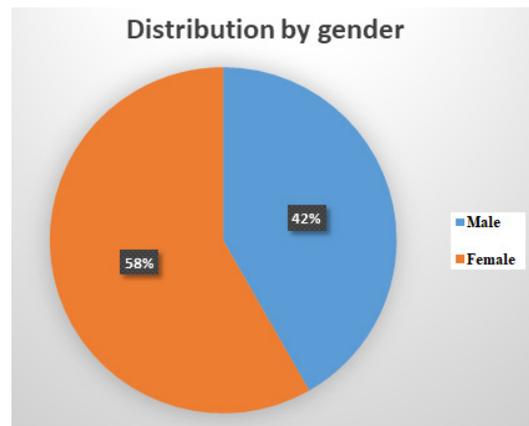


Figure 1: Distribution by gender.

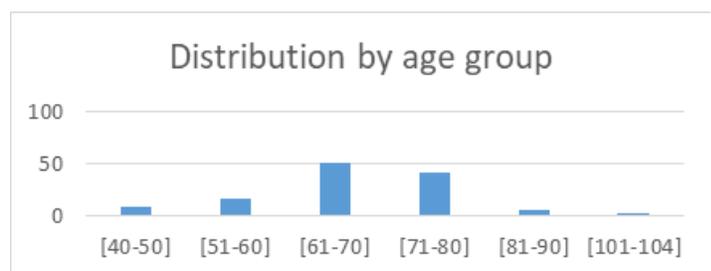


Figure 2: Distribution by age group: the most represented age group was 61-70 years with a rate of 40.2% and the average age was 68.5 years.

Preoperative Visual Acuity

Table 1: Distribution of patients according to preoperative visual acuity:

Visual Acuity	Frequency	Percentage (%)
AV<1/50	125	98.4
1/50 ≤ AV<1/20	2	1.6
Total	127	100

Table 2: perioperative complications:

Complication	Frequency	Percentage (%)
Posterior capsular rupture	6	4.726
Iridodialyse	1	0.787
Hyphema	1	0.787
Nothing to report.	119	93.7
Total	8	100

Table 3: Postoperative complications:

Complication	Frequency	Percentage (%)
Corneal edema	55	43.318
Residual mass	2	1.574
Ocular hypertension	2	1.574
Decentered implant	3	2.36
Iris hernia	2	1.574
Nothing to report.	63	49.6
Total	64	100

Table 4: Distribution of patients according to postoperative visual acuities without optical correction at Day 30:

Uncorrected visual acuity	Frequency	Percentage (%)
< 1/10	5	1.27
1/10 ≤ AV < 3/10	76	59.84
≥ 3/10	46	38.89
Total	127	100

Table 5: Distribution of patients according to postoperative visual acuities with optical correction (TS) at day 30:

Corrected visual acuity	Frequency	Percentage (%)
1/10 < AV < 3/10	19	14.96
≥ 3/10	108	85.04
Total	127	100

Discussion

The average age of patients in our series was 68.5 years; the average age of patients with cataracts in the literature depends on the inclusion criteria set by the authors. The average age is reported to be higher in studies targeting elderly subjects. Ebana MSR et al in Cameroon [7], and Guirou N et al. [8] in Mali, found average ages of 59.06 years and 65 years, respectively, in a series including patients of all ages.

Comorbidities in our series were present in 9 patients, or 7.1%; including 5 cases of hypertension, or 3.9%, and 3 cases of diabetes, or 2.4%; these results are similar to data in the literature where hypertension and diabetes are the most common comorbidities [9-11]; partly because they are the most investigated conditions during the preoperative examination for known reasons.

In our series, the female sex was predominant with 58.3% women compared to 41.7% men; these results are similar to those found by Guirou et al. [10] and Djiguimé et al. [12], who found a female predominance in their series with 51.9% and 50.38% respectively.

Unlike the results found by Meda [13] and Diallo in Burkina Faso [14], who found a male predominance in their series.

The pre-operative visual acuity in our study was lower than 1/50 in 98.4% of patients, these results are comparable to those found by Guirou N et al. in Mali [8] and Mananu in Mali [15] who found 93.6% and 90.5% respectively. These results are higher than those of Meda [13] in Burkina Faso who found 75%. These results can be explained by the late consultation of patients in our countries; due to geographic and financial accessibility reasons, unlike in developed countries.

Perioperative complications were found in 8 patients, which is 6.29%. Among these complications, capsular rupture was the most significant at 4.72% of all perioperative complications. These results are similar to those obtained by Mananu from Mali [15], who found 6.5%, but are higher than those found by other African authors: SM Diara et al. from Mali [16], who found 3.12%, and Guzek [17] in Ghana, who found 3%, as well as those of Guirou N et al. [8] in Mali and Diallo in Burkina Faso [14], who found 1.83% and 1.33%, respectively.

This can be explained by the surgical technique used in most of these studies, whether it be phacoalternative, phacoemulsification, or tunneling with a small self-sealing corneal opening. This allows for the maintenance of positive pressure and a good anterior chamber during the surgical procedure, which reduces the risks of capsular or zonular rupture; unlike the manual extracapsular extraction technique used by our team where the corneal opening is relatively large (approximately 8 mm) and the risk of complications is higher.

The most common postoperative complication is corneal edema, which was present in 43.3% of all cases, with a very favorable evolution. These rates are higher than those found in the literature, which varies from 10.9% to 30% [13,18,19] according to the studies.

Manipulations in an anterior chamber that is sometimes collapsed affecting the endothelium, especially during the expulsion of hard and large crystalline nuclei or during washouts; can damage the corneal endothelium and thus lead to corneal edema.

In our series, postoperative hypertonia was noted in 1.57%, the progression was favorable under medical treatment until complete normalization in all patients by day 30. These results are lower than those found by: Dohvoma VA [20] and Diallo et al. [14], who found 4.84% and 9.5% postoperative hypertonia, respectively. The risk of postoperative hypertonia is increased if the washing and aspiration of the viscous material are incomplete.

According to the recommendations and guidelines of the World Health Organization (WHO), functional outcomes are classified as good when the postoperative visual acuity without correction is greater than or equal to 3/10 in at least 80% of cases or in at least 90% with correction. At 30 days, with correction worn, we noted 85.039% good visual results; 14.96% borderline results, following these recommendations. Our results are below WHO guidelines. According to the literature, the majority of results from studies

in developing countries are below WHO standards but are getting closer to these standards, unlike developed countries which are well above WHO standards [8,7,21].

By comparing uncorrected vision with that with TS, we see that visual acuity $\geq 3/10$ has increased from a proportion of 36.2% to 85%. However, it is slightly lower than the proportion recommended by the WHO criteria, but it is close. Diallo JW [18] recorded 94.4% good results with the best correction at J30, while Diarra SM [18] noted in his study 57.81% good visual results. Among the causes of poor outcomes, we identified, among others, pre-existing corneal dystrophy and uncorrected ametropia that was not evaluated, induced by surgery or the calculation of the implant.

Conclusion

The primary cause of curable blindness, cataracts remain a significant public health issue, particularly in developing countries. The proportion of blindness due to cataracts accounts for over 50% of all eye conditions, compared to 5% in industrialized countries.

Cataracts also have the characteristic of being curable through a simple surgery with spectacular results; however, effectively combating blindness due to cataracts requires not only an increase in the number of interventions but also specific monitoring of the quality of the operations; our functional results are below the recommendations of the WHO. Identifying the causes of poor outcomes includes corneal dystrophy and post-operative ametropia induced by the surgery and/or the placement of an unsuitable implant; hence the importance of improving and acquiring new skills in our countries.

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