

Functional Results of Small Incision Cataract Surgery at the Nianankoro FOMBA Hospital in Segou, a Second Reference Centre in Mali

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Abstract

Introduction: Cataract is the leading cause of curable blindness in the world. Its treatment is surgical. The aim was to evaluate the functional results of cataract surgery in a second referral centre in Mali (Nianankoro FOMBA Hospital in Ségou) with reference to the quality standards of the World Health Organisation. **Patients and methods:** Prospective descriptive study conducted between October 2018 and September 2019 in the ophthalmology department of the Nianankoro FOMBA hospital in Ségou, in patients aged 40 years and over with cataract. **Results:** During the study, 954 eyes were operated on, of which 522 (54.7%) were female. The average age was 64.28 years. The occupation of housewife was 52.7%. The main reason for consultation was the decrease in visual acuity with 96.1%. Hypertension and diabetes were 20.1% and 5.7% respectively. The initial uncorrected distance visual acuity was less than 1/10 in 94.2% of cases. At 30 days postoperatively, the good, average and poor results were respectively 82.92%, 12.01% and 5.06% without optical correction, decreasing to 92.56%, 4.51% and 2.93% respectively after optical correction. **Discussion:** These results met the World Health Organization standards which recommend a value greater than or equal to 80% without correction and greater than 90% with correction for good results and a value of less than 5% for poor results with correction. **Conclusion:** Cataract surgery with Phaco A is a simple solution that gives good results and is well adapted to our socio-economic context.

Keywords: Functional results, Surgery, Cataract.

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INTRODUCTION

Cataract remains the leading cause of curable blindness in the world; particularly in developing countries, where nine out of ten blind people live [1, 2]. The only curable treatment remains surgery. As such, it constitutes one of the greatest public health challenges of the 21st century in developing countries. There is growing concern about the functional outcomes of cataract surgery in developing countries where the latest population surveys have shown that 40-75% of operated eyes have visual acuity <3/10, with as many as 50% <1/10 [3].

In developed countries (United States, Canada, Denmark, Spain), 92% of operated eyes have a

postoperative visual acuity $\geq 3/10$, 6% between 1/10 and 3/10, and 2% <1/10 [4].

At IOTA, in 2010, 45.5% of operated eyes had a postoperative visual acuity $\geq 3/10$, 33% between 1/10 and 3/10, and 21.6% <1/10 [5]. Combating cataract-related blindness involves not only sufficient surgical coverage but also good surgical outcomes;

The purpose of the study was to determine the functional results of small-incision manual cataract surgery at the Nianankoro FOMBA Hospital in Segou, a second reference center in Mali.

MATERIALS AND METHOD

This was a prospective descriptive study conducted between October 2018 and September 2019, i.e., 12 months in the ophthalmology department of the Nianankoro FOMBA hospital in Ségou, involving 954 eyes operated on for cataract. The sampling was exhaustive including all patients aged at least 40 years, presenting a cataract with a disturbing visual acuity and having given their consent to participate in the study.

Not included in this study were all patients with post-traumatic cataract, complicated cataract, congenital cataract, lost to follow-up and patient refusal. We described variables related to sociodemographic data, preoperative clinical examination data, therapeutic data, and postoperative clinical examination data. Our patients did not receive biometrics for the calculation of implant power. The anesthesia was peribulbar. The incision was made superiorly. We used rigid poly-methyl-methacrylate (PMMA) implants. The postoperative follow-up was done at D1, D2, D7, D15 and D30. The postoperative

visual acuity without and with optical correction measured at D30 was the one retained as final. The results were analyzed according to the World Health Organization recommendation: good results (VA \geq 3/10), average results (VA between 1/10 and 2/10), poor results (VA $<$ 1/10).

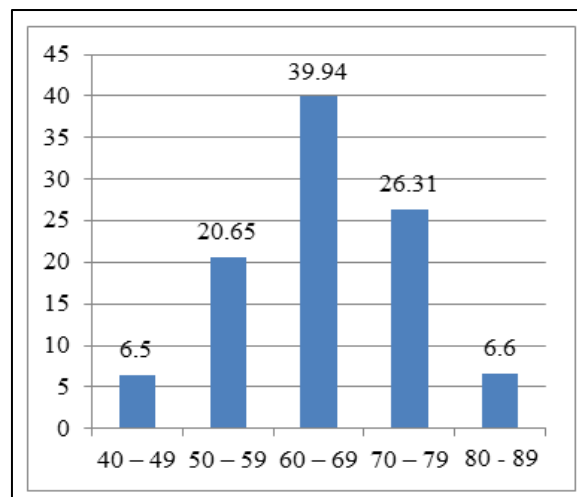
Ethical and Moral Conditions

Informed and written consent of the patients was requested and obtained, confidentiality of the records was guaranteed.

RESULTS

In our study we operated on 954 cataract eyes of 732 patients (222 patients had bilateral cataract and 510 had unilateral cataract). The follow-up rate was 100% of cases at D1 and 86% at D30.

Females accounted for 54.72% with an M/F sex ratio of 0.82. The age range of 60 to 69 was the most common with 39.94% of cases. The average age was 64.28 years with extremes of 40 and 89 (Graph 2).



Graph 1: Distribution of patients by age

The profession of housewife was the most frequent with 52.73% of cases, followed by agriculture and civil servant with 17.41% and 10.93% respectively.

The main reason for consultation was the decrease in visual acuity with 96.12% of cases.

Among the comorbidities, general pathologies were dominated by arterial hypertension and diabetes

with respectively 20.13% and 5.66% of cases; and ocular pathologies by glaucoma which was 2.73% of cases.

The distance visual acuity without preoperative correction was less than 1/10 in 94.23% of cases and light perception represented 58.70% of cases (Table 1).

Table 1: Distribution of patients according to initial visual acuity without correction

	Initial visual acuity Stenosis		Stenopeic hole	
	Effectifs	%	Effectifs	%
03 - 10/10	6	0,63	23	2,41
01 - 02/10	49	5,14	49	5,14
Inf à 01/10	899	94,23	882	92,45
Total	954	100	954	100

Initially the cornea was normal in 85.22% of cases. Total white cataract was the most frequent with 56.81% of cases.

The fundus was available in 251 eyes, i.e. 26.31% of cases, and we found 23.11% glaucoma, 17.93% RHTA and 7.57% non-glaucomatous anterior optic neuropathy.

Cardiological and dialectological advice was sought in 12.26% and 5.03% of cases, respectively, before surgery. Peribulbar anesthesia was the technique used.

The average power of the intraocular implant used was 20.22 diopters with extremes +19.00 and 21.00 diopters. In the postoperative follow-up at D2 we noted a loss of sight in 02 cases (0.20%) and at D30 134 cases (14%).

Table 2: Distribution of patients according to visual acuity on D2 postoperative without correction

Results	Acuity D 2		Stenopeic hole D 2	
	Effectifs	%	Effectifs	%
03– 10/10	713	74,89	758	79,62
01– 02/10	127	13,34	85	8,93
Inf à 01/10	112	11,76	109	11,45
Total	952	100	952	100

At D2 postoperatively, distance visual acuity without optical correction was good (visual acuity \geq

3/10) in 74.89% of cases and with a stenoid hole it was improvable in 79.62% of cases.

Table 3: Distribution of patients according to visual acuity on D30 post-op without correction

Results	Acuity D30		Stenopeic hole D30	
	Effectifs	%	Effectifs	%
03– 10/10	689	84,02	754	91,95
01– 02/10	95	11,59	39	4,76
Inf à 01/10	36	4,39	27	3,29
Total	820	100	820	100

At D30 post-op, distance visual acuity without optical correction was good (visual acuity \geq 3/10), in

84.02% of cases and with a stenopeic hole it was 91.95% of cases.

Table 4: Distribution of patients according to visual acuity on D30 post-op with correction

	Acuity D30 avec correction	
	Effectifs	%
03– 10/10	741	92,97
01– 02/10	35	4,39
Inf à 01/10	21	2,63
Total	797	100

After optical correction on 797 eyes, the good results were 92.97%; the average results were 4.39% and the bad results were 2.63%.

et al., [10] with 50.25%; and M'ba Aki T *et al.*, [11] with 51.49%. This female predominance is consistent with the demographic data of Mali where women represent 51.30% of the general population [12].

COMMENTS AND DISCUSSION

In our study, we found an average age of 64.28 years, which is similar to that of Guirou N *et al.*, (65 years) [5] and Diallo JW *et al.*, (66 years) [6]; but higher than that of Karki P *et al.*, (62.59 years) [7]; and confirming that this pathology is the prerogative of the elderly subject.

We found a female predominance (54.72%) as in the study of Guirou N *et al.*, (51.9%) [5] And Ammous I *et al.*, (63.33%) [8]. There are also studies with a male predominance: Diallo JW *et al.*, [6] with 57.7%; Charles N *et al.*, [9] with 56%; Nonon Saa KB

Housewives, farmers and civil servants were respectively 53.34%; 17.41% and 10.93%. Diallo JW *et al.*, [6] obtained 34.7% of housewives and 21.3% of farmers (male dominated study). Nonon Saa KB *et al.*, [10] obtained 81.65% of farmers and or herders and 18.24% of government employees or traders (rural study).

These figures could be explained by the high prevalence of cataract in these categories of population (more represented in the general population).

In our study, decreased visual acuity was the most frequent reason for consultation with 96.12% of cases. In Bouaké Abib D *et al.*, [13] 85% of patients had consulted for decreased visual acuity. In our series, hypertension and diabetes were noted in 20.13% and 5.66% of cases.

Our figures are higher than those of S M Diarra *et al.*, in Bamako [14] who noted 6.87% of hypertension and 6.25% of diabetes cases. This could be related to the fact of the mass campaign at their level.

Of the 954 eyes operated on, the distance visual acuity without preoperative correction was less than 1/10 in 94.23%. This proportion is similar to that of Guirou N *et al.*, [5] (93.58%) and M'ba Aki T *et al.*, [11] (100%) but higher than that of Diallo JW *et al.*, [6] (70.66%) and Karki P *et al.*, [7] (73.17%). This result is characteristic of developing countries where cataract surgery is generally delayed for various reasons (poverty, geographical accessibility, fear of surgery, lack of surgeon, lack of technical platform, ignorance).

The average power of the intraocular implant was 20.22 diopters. In our study, we used a lower average power than that of Diallo JW *et al.*, (21.5 diopters) [6].

The World Health Organization recommends a value greater than or equal to 80% without correction and greater than 90% with correction for good results and a value less than 5% for poor results with correction.

Our results met the requirements of the World Health Organization with 82.92% of good results without correction, 92.56% of good results with correction and 2.93% of bad results with correction.

For good and bad results with correction, these results are similar to those obtained by Norregaard J. C *et al.*, [4], respectively 92% and 2%; but inferior to those of Sovogui MD *et al.*, [14] in Conakry who had 88% of cases with good results. Our figures are higher than those of S M Diarra *et al.*, in Bamako (70.83%) [15], Lama P *et al.*, in Sigui (66%) [16]; Abib D *et al.*, in Bouaké (80%) [13] But lower than those of Venkatesh R *et al.*, [17] who obtained 98.29% good results without any bad results.

These differences in results can be explained on the one hand by the difference in surgical strategies (fixed and mass surgery) and on the other hand by the total or partial availability of the calculated implants. The good results of our series can be explained by the seniority of the surgeons (at least 13 years) and the use of implants not exceeding 20.50 diopeters.

CONCLUSION

Cataract remains the leading cause of curable blindness in the world, particularly in developing countries. Its treatment is surgery. Cataract surgery using Chaco A is a simple solution that gives good results with low complications and is well adapted to our socio-economic context. The use of biometry and the availability of calculated implants could further improve the results observed.

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