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Evaluation of the Functional Results of Cataract Surgery in Patients Aged 40 and over at the CSRéf in Fana (Mali)

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Abstract **Original Research Article**

In order to improve the quality of cataract surgery services, an evaluation of the functional results of cataract surgery was carried out at the Fana referral health centre. This was a prospective study of patients aged 40 and over operated on for cataracts from December 2017 to May 2018. The results were analyzed using Monitoring Cataract Surgical Outcome (MCSO) software of 169 eyes of operated patients, 141 eyes were included with an average age of 65.45 years. Manual phaco-Alternative without sutures and extra capsular extraction, with implantation in the posterior chamber in 99.3%, were the main surgical techniques. Operative and postoperative complications were respectively vitreous loss (3.6%), corneal edema (9.9%) and opacification of the posterior capsule (6.4%).Functional results indicate that 76.6% of patients had good visual acuity (≥3/10) with the correction worn. The poor results weredue to pre-existing ocular comorbidities (7.8%). These results are below the WHO standards which recommend aVA>80% for the good result and VA<5% for the bad result. Identifying the causes of poor outcomes draws attention to improving case selection and long-term follow-up.

Keywords: Cataract, surgery, functional results, CSRéf of Fana, Mali.

INTRODUCTION

The WHO in 2010, estimated in the world 285 million people suffering from visual impairments and 39 million suffering from blindness. Despite advances in surgery in many countries in thecoursedecades, cataract remains the main cause of blindness in the world, where it represents 50% of all causes of blindness [1]. In sub-Saharan Africa the prevalence of blindness is estimated at 1.4% [2]. According to the WHO in 2000, during the launch of the vision 2020 initiative in Bamako for French-speaking Africa (Benin, Burkina, Burundi, Cameroon, Comoros, Congo, Ivory Coast, Gabon, Guinea, Madagascar, Mali, Niger, CAR, DRC, Rwanda, Senegal, Chad and Togo), cataract is responsible for 60% of blindness cases in the sub-region, i.e. some 1.2 million people, with an annual number of new cases of blinding cataract estimated at 300,000 [3]. In Mali, the prevalence of blindness was estimated at 1.2%, for a population of approximately 18 million inhabitants in 2015. Thus the number of blind people would be 200. 000 people including nearly 100,000 by cataract [4]. The prevalence of cataracts increases dramatically with age, blindness from cataracts in developing countries will increase very rapidly in the future as a result of the expected increase in the number of elderly people. Increased promotion of surgery and better visual recovery may play an important role in encouraging patients to accept the operation [5]. The treatment of cataract remains surgical, several techniques exist, the reference of

which is phacoemulsification. However, its practice is not widespread in developing countries because of its cost [6]. Phaco- Alternative or small incision cataract surgery (or Small Incision Cataract Surgery SICS) gives results comparable to those of phacoemulsification [7]. At the CSRéf of Fana (Koulikoro region in Mali) in 2016, 453 cases of cataract were diagnosed and 348 were operated on [5].

The quality of cataract surgery results depends on a number of factors:

- Availability of qualified personnel;
- Availability of quality infrastructure and equipment;
- Surgical technique used;
- Patient-related risk factors, such as coexisting ocular pathology (glaucoma, age-related macular degeneration, corneal scarring).

Indeed, for long-term follow-up and to improve the quality of services, it is necessary to evaluate the functional results of cataract surgery in patients aged 40 and over at the reference health center of Fana; hence the interest of this work.

MATERIALS AND METHODS

We carried out a prospective study, focusing on patients aged 40 and over operated on for cataracts from December 2017 to May 2018 at the secondary ophthalmology center in Fana, having benefited from a postoperative follow-up of at least 30 days.

Patients were recruited during ordinary consultations at the secondary ophthalmology center in Fana. The collection medium was survey forms drawn up according to a standardized protocol recommended by the WHO, from the consultation register, the patient's files and the operating report register. The data collected was used to assess functional outcomes. The functional results were analyzed according to the guidelines and recommendations of the WHO concerning the postoperative results of cataract surgery with intraocular implantation developed in 1998:

- **Good:** AVL sc 10/10 – 3/10 >80% AVL ac >90%
- **Limit:** AVL sc <3/10 ≥1/10 <15% AVL ac <5%
- **Bad:** AVL sc <1/10 <5% AVL ac <5%.

The data collected were entered and analyzed using Monitoring Cataract Surgical Outcome (MCSO v2.4) and SPSS software.

RESULTS

Out of 169 eyes of operated patients, 141 eyes were included with an average age of 65.45 years.

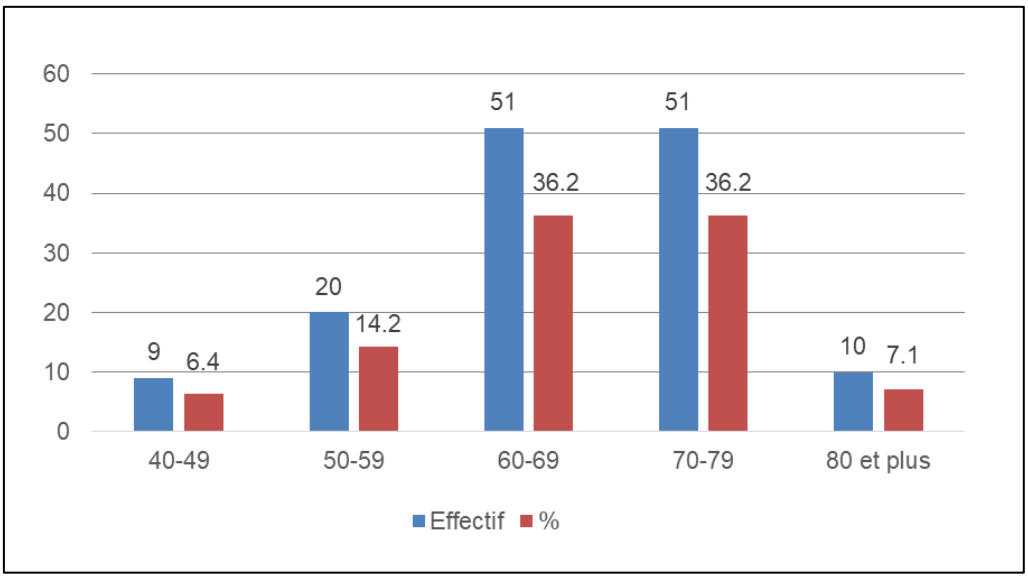

Figure 1: Distribution of patients according to age groups

The 60-69 and 70-79 age groups each represented 36.2% of the 141 operated eyes.

Table I: Distribution of patients by sex

Sex	Effective	%
Male	71	50.4
Feminine	70	49.6
Total	**141**	**100**

The male sex was slightly more represented with 50.4%.

Table II: Breakdown by surgical technique

Surgical technique	Effective	%
PHACO A	94	66.7
EEC	47	33.3
Total	**141**	**100**

The Phaco A was the most practiced technique with 66.7%.

Table III: Distribution of patients according to VA between the 4th and 11th postoperative week (D30 and more postop) with the best correction

AVL with best correction	Effective	%	WHO standards
Good (AVL ≥ 3/10)	**118**	**83.7**	> 90%
Limit (AVL 2/10 ≥ 1/10)	14	9.9	< 5%
Bad (AVL < 1/10)	9	6.4	< 5%
Total	**141**	**100**	**100%**

With the best correction, 83.7% had good VA and 6.4% had poor VA.

Table IV: Distribution of patients according to late postoperative complications (D30)

Late postoperative complications	Effective	%
Chronic corneal edema	2	1.4
Clouding of theposterior capsule	9	6.4
None	130	92.2
Total	**141**	**100**

Opacification of the posterior capsule was the most common late postoperative complication, 6.4%.

Causes of Poor Functional Outcomes

Table V: Distribution of patients according to the causes of poor functional results between the 4th and 11th week

Causes of poor results	Effective	%
Selection	11	7.8
Surgery	2	1.4
Induced ametropia	2	1.4
None	126	89.3
Total	**141**	**100**

Selection: Preoperative co-morbidities (Bietti, old iritis, Glaucoma).
Surgery: Chronic corneal edema.
Induced Ametropia: Inadequate power of the implant.

The selection cases were the causes of poor functional results with 7.8%.

COMMENTS AND DISCUSSION

The evaluation of the functional results of cataract surgery in patients aged 40 and over allowed us to diagnose 224 cases of cataract and operated on 169 eyes during the period from December 2017 to May 2018 at the CSRéf of Fana, Koulikoro region in the Republic of Mali.

Of the 169 operated eyes, 141 eyes met the inclusion criteria.

Indeed, during this work, we had some difficulties and some limitations of the study. Recovery in the block for washing of the cortex, repositioning of the implant and suturing. During follow-up, some patients did not show up for follow-up at the 4th postoperative week. This could be explained by accommodation difficulties, an improvement in their visual acuity or the opposite leading them to judge it useless to return, in particular those residing outside the town of Fana.

As the department did not have an ultrasound device, the out of order Javal keratometer did not allow us to do the biometrics for the calculation of the power of the implant as well as to measure the pre and postoperative astigmatism.

I. Socio-Demographic Characteristics

The average age was 65.45 years, with a sex ratio of 1.01. This explains the high prevalence of cataracts in this age group due to senility. This result was similar to that of Guirou who found an average age of 65 years [13]. It was slightly higher than those of Traoré [14] in Mali and Rupert [15] in Pakistan who found 61 years and 59.6 years respectively.

Housewives represented the majority of the workforce with 49%, followed by farmers with 30.7%. This could be explained by the high prevalence of blinding cataract in these groups for various reasons: ignorance, lack of financial means.

This result was similar to that of Ongoïba [8] (49.7% housewife).

The majority of patients were from Fana with 58.8%. This was due to the proximity of the eye care center.

II. Preoperative Examination

The majority of our patients had positive light perception as preoperative VA, ie 56.7%. This is a characteristic picture of developing countries where the surgical treatment of a cataract is generally delayed for various reasons (lack of financial means, fear of surgery, absence of a surgeon, ignorance, absence of a technical platform, inaccessibility geographical).

This result was lower than those of Meda [16] (95%) in Burkina and Fanny [17] in Ivory Coast (100%).

Bietti's corneal dystrophy dominated the associated ocular pathologies (5%). This is explained by the Sahelian climate and especially their profession as farmers. This result was higher than that of Diallo [6] (3.33)%.

III. Surgery

The patients were operated on by two surgeons, manual Phaco A without sutures (66.7%), and EEC (33.3%), with implantation in the posterior chamber (99.3%), were the main surgical techniques. This was explained by a lack of Phaco A kit.

This result was similar to that of Rupert [15] in Pakistan Phaco A (66%), EEC (34%); different from that of Guirou [13] EEC (52.2%), Phaco A (47.4%).

IV. Per and Post-operative Complications

Out of 141 operated eyes, vitreous outcome was the main intraoperative complication with 3.6%. This was more often due to patient agitation.

This result was close to those of Guzek [18] in Ghana (3%), Daboué [19] (3%) and higher than those of Guirou [13] (1.83%).

Early postoperative complications were dominated by corneal edema with 9.9% favorable outcome. Thiswas more often due to manipulations in the anterior chamber and especially to manual expulsion of the lens nucleus in phaco A.

This result was close to those of Nadio [20] (10%), and lower than those of Diallo [6] (26.33%).

Opacification of the posterior capsule was the most common late postoperative complication, 6.4%. These cases were referred to IOTA for lack of yag laser at Fana CSO. Our result was similar to those of Toure [21] (5%) and Guindo [22] (6.8%).

V. Functional Results

Functional results indicate that 76.6% of patients had good VA with the correction worn and 7.8% had poor VA.

With the best TS correction, the proportion of patients with good results was 83.7% and 6.4% with poor results.

These results were below the WHO standards which recommend a VA>80% for the good result with the correction worn and a VA>90% with the best correction; a VA<5% for the bad result. This could be explained by pathologies other than the cataract in the eye to be operated on (Bietti's corneal dystrophy, old iritis, glaucoma).

Our good and bad results with the best correction were superior to those of Guirou [13] (63%) and (14%); lower than those of Gogate [23] in India (98.4%).

VI. Cause of Poor Results

The causes of poor functional results were related to associated pathologies (Bietti's dystrophy, old iritis, glaucoma) with 7.8%. This could be explained by poor case selection.

This result was higher than that of Djiguimdé *et al.*, [24] (4.4%), but different from Ongoïba [8] who found (36.4%) refractive errors due to poor functional results.

CONCLUSION

The evaluation of the functional results of cataract surgery in patients aged 40 and over at the CSRéf of Fana, allowed us to assess the functional results, to identify the operative complications and the causes of poor functional results.

At its end, the functional results were lower than the WHO recommendations.

Our results could be improved by improving case selection to avoid surgery in patients who will not benefit, reducing surgical complications, and monitoring long-term outcomes.

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