**Evaluation of preoperative anxiety in patients undergoing Cataract Surgery at tertiary hospital in Bamako, Mali**

**ABSTRACT**

**Purpose.** To evaluate the preoperative anxiety in patients undergoing cataract surgery.

**Patients and Methods.** A descriptive cross-sectional study was carried out from July 10, 2024 to August 18, 2024 at the University Hospital Center of the Institute of Tropical Ophthalmology of Africa in Mali. Patients aged 18 and older who likely to understand and answer our questions were included. The Amsterdam Preoperative Anxiety and Information Scale was used to assess preoperative anxiety.

**Results**. A total of 300 patients were included, among whom 161 women and 139 men for a sex-ratio of 0.9. The mean age was 63 ± 12.2 years. The mean preoperative anxiety score was 10.13 ± 4.79 and 42.7% of patients presented a high level of anxiety (score ≥ 11). The mean score related to the need for information was 7.52 ± 2.7 and 62 % of patients presented a high need for information (score > 7). There was a statistically significant association between the high level of anxiety and age, previous surgery and complications.

**Conclusion.** Cataract surgery is often accompanied by anxiety and the patients need information. Preoperative counselling could reduce anxiety and therefore complications.

***Keywords:*** *anxiety, cataract surgery, Preoperative counselling, Mali*

**INTRODUCTION**

Cataract is the leading cause of blindness worldwide, and surgery is currently its only treatment [1]. Preoperative anxiety around cataract surgery affects a large proportion of patients, despite advances in the technique and administration of anesthesia [2]. Overall, the incidence of preoperative anxiety is estimated between 11% and 80% [3].

“Patients undergoing cataract surgery may be afraid of pain, of total vision loss after the operation, or of not performing their daily activities. The primary cause of anxiety during cataract surgery is the fear of the surgery as well” [4]. Vonor et al. in Togo reported that the most anxiety causing preoperative factor was the fear of postoperative pain followed by the possibility of losing the operated eye [5].

Currently, adult cataract surgery is performed under local (retrobulbar, peribulbar and sub-tenon’s blocks) or topical anesthesia [6]. “Anesthetic management is an important step in cataract surgery and the pre-anesthetic consultation allows us to assess whether patients are eligible for surgery according to medical, psychological and social criteria. In addition, when a patient has to undergo surgery, anesthesia and the surgical procedure are the main sources of anxiety” [7].

It has been shown that a high level of preoperative anxiety can increase the risk of peri- and post-operative complications [7]. “For improve health and decrease the anxiety levels, health professionals should approach to the patient planned for cataract surgery as a whole from a biopsychosocial perspective” [8]. However, in Africa, the lack of human resources leads to a lack of patient preparation. Sometimes the patient preparation is carried out by an anesthetist nurse during the pre-anesthetic visit, most often a few days before the procedure [9].

In this study, it is aimed to evaluate the preoperative anxiety and its consequences during anesthesia and surgery.

**PATIENTS AND METHODS**

This is a cross-sectional and descriptive study carried out at University Hospital Center of the Institute of Tropical Ophthalmology of Africa in Bamako (IOTA) from July 10, 2024 to August 18, 2024.

We included patients aged 18 and older who consulted and hospitalized the day before awaiting cataract surgery, agreed to participate in the study and likely to understand and answer our questions.

After obtaining verbal and written informed consent, a preoperative questionnaire was verbally administered the day of surgery to each study partici­pant including:

* Socio-demographic data,
* Anamnestic and clinical data,
* Anxiety and the need for information data based on the Amsterdam Preoperative Anxiety and Information Scale (APAIS)

The APAIS test was developed specifically to assess preoperative anxiety [10]. It comprises six items, four of which relate to the general measurement of preoperative anxiety (two concern anesthesia-related anxiety while the other two concern surgery-related anxiety). The remaining two items assess the patient’s need for anesthesia-related and surgery-related information (Table 1).

**Table 1.** The Amsterdam Preoperative Anxiety and Information Scale

|  |
| --- |
| **Agreement with each statement should be graded on a five-point** |
| **Scale: 1=not at all, 2=slightly, 3=moderately, 4=very, 5=extremely** |
| A1 I am worried about the anesthetic |
| A2 The anesthetic is on my mind continually |
| A3 I would like to know as much as possible about the anesthetic |
| C1 I am worried about the procedure |
| C2 The procedure is on my mind continually |
| C3 I would like to know as much as possible about the procedure |
| **Average scores calculated from the Amsterdam scale** |
| A1 + A2: Anxiety related to anesthesia |
| C1 + C2: Anxiety related to surgery |
| A1 + A2 + C1 + C2: Global anxiety |
| A3 + C3: Need for information |

The maximum score on the anxiety subscale is 20, and 10 on the need for information subscale [10]. “An anxiety score greater than or equal to 11 corresponds to a high level of anxiety; below this score the anxiety level is classically considered adapted to the situation” [11]. For the score relative to the need for information, it is possible to distinguish three groups of patients (from 2 to 4: none or little need for information; from 5 to 7: average need for information; beyond 7: high need for information) [10].

IBM © SPSS 20 program was used to analyze the data. Descriptive data is presented with the appropriate value of either average standard deviation (±) or number or percentage (%). The chi-square test used to determine association between discrete variables and the p-value taken as less than 0.05 for statistical significance.

**RESULTS**

A total of 300 patients were included, among whom 161 women (54%) and 139 men (46%) for a sex-ratio of 0.9. The mean age was 63 ± 12.2 years (range 19 - 88 years). Seventy-two (24%) patients reported previous cataract surgery on the fellow eye (Table 2).

**Table 2.** Participant characteristics

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristics** | | **Number (n=300)** | **Percentage** |
| **Age** | < 50 | 48 | 16% |
|  | 50-59 | 70 | 23% |
|  | 60-69 | 104 | 35% |
|  | ≥ 70 | 78 | 26% |
| **Sex** | Women | 161 | 54% |
|  | Men | 139 | 46% |
| **Educational level** | None | 94 | 31,3% |
|  | Primary school | 128 | 42,7% |
|  | Secondary school | 56 | 18,7% |
|  | University | 22 | 7,3% |
| **Occupation** | Worker | 68 | 22,7% |
|  | Not working | 141 | 47% |
|  | Retired | 91 | 30,3% |
| **Presence of chronic disease** | Yes | 120 | 40% |
|  | No | 180 | 60% |
| **Previous cataract surgery** | Yes | 72 | 24% |
|  | No | 228 | 76% |
| **Laterality** | Right eye | 171 | 57% |
|  | Left eye | 129 | 43% |

Cataract surgery performed was the standard manual small-incision cataract surgery (MSICS) with monofocal intraocular lens implantation and retrobulbar anesthesia.

For all patients the mean preoperative anxiety score was 10.13 ± 4.79. Women had a higher mean (10.44) than men (9.82). One hundred and twenty-eight patients (42.7%) had a score greater than or equal to 11, considered a high level of anxiety. The mean anxiety score related to anesthesia was 4.12 ± 1.9 and the mean anxiety score related to surgery was 6.18 ± 2.8. The mean score related to the need for information was 7.52 ± 2.7. One hundred and eighty-six (62%) patients presented a high need for information (score greater than 7), 78(26%) presented an average need for information (score from 5 to 7) and 36 (12%) presented none or little need for information (score from 2 to 4).

In this study, there was no statistically significant association between the high level of anxiety and sex or laterality. However, we found a statistically significant association between the high level of anxiety and age, previous surgery and anesthetic complications or surgical complications (Table 3).

Table 3. Factors associated with preoperative anxiety.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Anxious** | **No Anxious** | **p** |
| **Age** | 59 ± 12,7 | 67 ± 11,1 | **0,016** |
| **Sex** |  |  | 0,76 |
| Female | 69 | 92 |  |
| Male | 59 | 80 |  |
| **Chronic disease** |  |  | 0,57 |
| No | 77 | 103 |  |
| Yes | 51 | 69 |  |
| **Previous surgery** |  |  | **0,002** |
| No | 105 | 123 |  |
| Yes | 23 | 49 |  |
| **Anesthesic complications** |  |  | **< 0,001** |
| No | 94 | 144 |  |
| Yes | 34 | 28 |  |
| **Surgery complications** |  |  | **< 0,001** |
| No | 110 | 161 |  |
| Yes | 18 | 11 |  |

**DISCUSSION**

“Development of cataract is affected by many risk factors and age is one of theses factors. cataract prevalence increases with age, especially after the age of 60 years” [12]. We found a mean age of over 60, as did other authors in sub-Saharan Africa [13,14]. In this study, women were most represented than men. According to the World Health Organization women have a higher prevalence of cataracts and a longer life expectancy [15].

“Anxiety is an unpleasant state of fear and worrying, which is defined as the tension and affection felt by the individual as being under threat” [8]. It is one of the most common psychological reactions among patients awaiting surgery [10].

“The APAIS scale was used to assess patient anxiety and need for preoperative information. This scale has the advantage of being simple compared with the STAI (Spielberger State-Trait Anxiety Inventory) scale, which is the gold standard” [16].

According to the APAIS scale, 42.7% of our patients presented a high level of anxiety. The study conducted by Lemaitre et al. in France reported a similar result [16]. However, we found a mean preoperative anxiety score slightly higher than those reported by Lemaitre et al. [16] and Rekik and al. [17]. In terms of the need for preoperative information, like Rekik and al., more than half of our patients had a high need for information [17]. This could be explained by the lack of communication and information prior to surgery in our context.

Studies reported that female gender is a common risk factor for preoperative anxiety [18,19,20]. In contrast, we did not find a statistically significant association between gender and preoperative anxiety. However, we found a statistically significant association between age and high level of anxiety; in fact, the oldest were the less anxious. But Nijkamp et al. showed no relation between age and anxiety state using the STAI scale [19]. In this study, “the anxiety was higher in patients operated for the first eye. Some authors found that the positive experiences of the first eye surgery significantly reduce the fear of the second surgery and the fear of becoming blind” [20]. “Furthermore, we found the association between high level of anxiety and both anesthetic and surgical complications. It was shown in a prospective observational study that preoperative anxiety was significantly associated with the level of pain experienced by patients during cataract surgery” [21]. “Consequently, patients who are painful, are uncooperative and agitated, making surgery more difficult, even in eyes without potential risk factors for complications. Also, for cataract surgery, preoperative counseling has been shown to reduce the level of patient fear as well as the proportion of patients reporting any level of anxiety” [21,22].

**CONCLUSION**

In our environment, cataract surgery in adult is often accompanied by anxiety and the patients need information. This anxiety is significantly higher in younger people and in those who undergoing surgery for the first eye. Both anesthetic and surgical complications are associated with high level of anxiety. Preoperative counselling could reduce anxiety and therefore complications.

**Consent:**

As per international standards or university standards, Participants’ written consent has been collected and preserved by the author(s).

**Disclaimer (Artificial intelligence)**

Authors hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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