

Preoperative assessment of expectations, anxiety and preferences for anesthesia in patients undergoing ambulatory knee arthroscopic surgery

P. VERELST, M. VERSTRAETEN, N. TULKENS, T. MAERTENS

Abstract : *Objective :* In this observational study, we aimed at measuring preoperative anxiety and preferences for anesthesia in patients undergoing knee arthroscopic surgery.

Background : Little is known about preoperative anxieties, expectations and preferences of patients undergoing surgery, for which both spinal or general anesthesia can be provided. Literature shows that spinal anesthesia is associated with lower postoperative morbidity and mortality rates as compared to general anesthesia (1-2). Anxiety itself is an important factor influencing patients' outcome (3).

Methods : Every patients >18 years old undergoing an ambulatory arthroscopy of the knee in the surgical day care center of the AZ Nikolaas (in Sint-Niklaas and Beveren), was asked preoperatively to fill in a questionnaire. The questionnaire focused both on the patients' knowledge about and preference of anesthesia, as well as their preoperative anxieties and worries. Patients were asked to score preoperative anxiety on a 5-point anxiety scale for any of 9 aspects/complications of the anesthetic (placement of the IV cannula, spinal puncture, death, awareness, pain, postoperative nausea and vomiting, cognitive impairment, infection, blood loss). During the study period, from January 11/01/ 2019 to 11/06/2019, a total of 806 patients were asked to fill out the questionnaire. 201 of these patients completed the questionnaire and were consequently enrolled in the study. This work has been approved by the Ethics Committee of the AZ Nikolaas on 11/11/2018 and by the Ethics Committee of the University Hospital in Antwerp (UZA) on 19/11/ 2018.

Results : Seventy-five % of patients had a clear preference for their anesthesia technique. Of these, 2/3 opted for general anesthesia. Patients mainly based their preference on a subjective feeling ; a minority had discussed the choice with their surgeon or general practitioner. Rarely, patients indicated the wish to talk to the anesthesiologist about their choice. Fear for a spinal puncture occurred in 40% of patients (median anxiety score 3/5, range 1-5) and was therefore the most prominent anxiety in this patient population.

Conclusions : Patients' greater preference for general over spinal anesthesia was clearly based rather on a subjective than an objective basis. Forty 40% of patients

had a substantial fear for spinal puncture. By informing patients about the risks and complications of the different anesthesia techniques, anxiety feelings can probably be alleviated, and a well-judged decision about their anesthesia technique can be made. There is room for improvement in communication and discussion between patients and anesthesiologists about the patients' choice of anesthesia technique.

Keywords : anesthesia ; anxiety ; arthroscopy.

INTRODUCTION

Arthroscopy of the knee is a commonly performed procedure in Belgium. It mostly takes place in an ambulatory setting. This procedure can be carried out either under general or spinal anesthesia. Many research papers comparing both anesthesia techniques have focused on clinical outcome parameters, such as time to discharge, time to first bladder voiding, pain scores, nausea scores, etc. in order to optimize the anesthetic technique, be it a general or a spinal anesthesia (4-9). The use of newer and shorter acting local anesthetic agents for spinal use has recently led to a renewed interest in this technique in an ambulatory setting.

Most studies do not take patients' preferences into account. One study may prove the benefit of

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This work has been approved by the ethics committee of AZ Nikolaas on 11/10/2018. Dr. G. De la Meilleure And by the ethics committee of UZA on 19/11/2018. Prof. Dr. G. Ieven Patients were included between 11/01/2019 and 11/06/2019.

technique A over technique B, but if a patient has a clear preference for technique B, the knowledge gained in the study cannot always be translated into clinical practice. Anxiety is an especially important factor influencing patients' outcome, that should not be underestimated (10-16, 3). Furthermore, patients do not always accept rational arguments ; they often have their own ideas and concerns, that are frequently influenced by their emotions (17-18).

METHODS

This work has been approved by the ethics committee of AZ Nikolaas on 11/10/2018 and

by the ethics committee of UZA on 19/11/2018. The reference number was B300201838073 with Prof. Cras as president of the committee. Patients were recruited to this observational study between 11/01/2019 and 11/06/2019. All patients undergoing ambulatory knee arthroscopy in the surgical day care centre of the AZ Nikolaas (Sint-Niklaas and Beveren) were asked to complete a questionnaire preoperatively (see supplementary material) and signed an informed consent form. At the outset, we aimed to enroll 200 patients. During the study period, a total of 806 patients were asked to complete the questionnaire, but due to time constraints in the busy operating theatre schedule, only 201 of these effectively participated.

The questionnaire asked whether patients received preoperative information, and if so, what was the source of preoperative information (surgeon, general practitioner, anesthetist or internet). Subsequently patients were asked about their preference for anesthetic technique, be it general or spinal anesthesia, and on what basis they had decided on their preferred technique. The questionnaire focused not only on the patients' knowledge of anesthesia and their preference of anesthetic technique, but aimed to assess their preoperative anxiety. Preoperative anxiety scores were rated on a 5-point numeric anxiety scale (1 = no fear whatsoever, 5 = maximal imaginable anxiety). This scale was applied to 9 aspects/complications related to the procedure (IV cannula placement, spinal puncture, death, awareness, pain, PONV, cognitive impairment, infection, blood loss). The patients were also asked to indicate their understanding of the level of training of anesthetists (specially trained nurse, medical specialist, specially trained surgeon or specially trained technician). Finally we asked patients if they already had surgery before, which type of anesthesia they got and if there were any side effects of the anesthesia.

Statistical analysis was performed using excel real statistics. Since the data in our study are ordinal data we used non parametrical tests for statistical analysis. After correction for missing values we applied the wilcoxon signed rank test to prove significance for fear for a spinal puncture over the other fears. P-values were < 0,001 every time, P-value < 0.05 was considered as significant.

RESULTS

Of all patients undergoing ambulatory arthroscopy of the knee during the duration of the study, 201 patients agreed to fill in the questionnaire. Some did it only partially, hence some data were missing. The mean age of the study sample was 51 years (range 18-80 years) and included patients of ASA class between I and III. One hundred and eight (53.7%) patients were males and 153 (76.1%) had previously undergone a surgical procedure. Specifications of our patient sample are described in Table 1.

91 patients (45.3%) said they had received preoperative information about the anesthesia and this was usually from the operating surgeon (49/201, 24.4%). In this sample, patients were rarely advised by their surgeons about the anesthetic technique (23/201, 11.4%).

Of the 201 patients, 151 (75.1%) had a clear preference for a specific type of anesthesia technique : 109 (54.2%) patients preferred general anesthesia, 42 (20.9%) chose to have a spinal. The remaining 50 (24.9%) patients had no clear preference.

As far as preoperative anxiety was concerned, a spinal puncture was clearly very frightening for a substantial number of patients [score 5 : 51/201 (25.4%) ; score 4 : 27/201 (13.4%) ; median anxiety score = 3]. Fear for a spinal puncture was therefore the most prominent anxiety in this patient population ($P < 0.001$ as compared to all other fears). None of the other aspects of anesthesia in the list was nearly as frightful to patients, no other aspect had a combined score (4/5 + 5/5) of more than 15%.

When asked about the anesthesiologist's training, approximately half of the sample recognized

Table 1
Demographic characteristics of the study sample

N	201
Age [mean (range)]	51 y (18-80 y)
Gender (n, male/female)	108/93
Previous surgery (n, yes/no/missing)	153/44/4
ASA class (n, I/II/III)	145/47/9

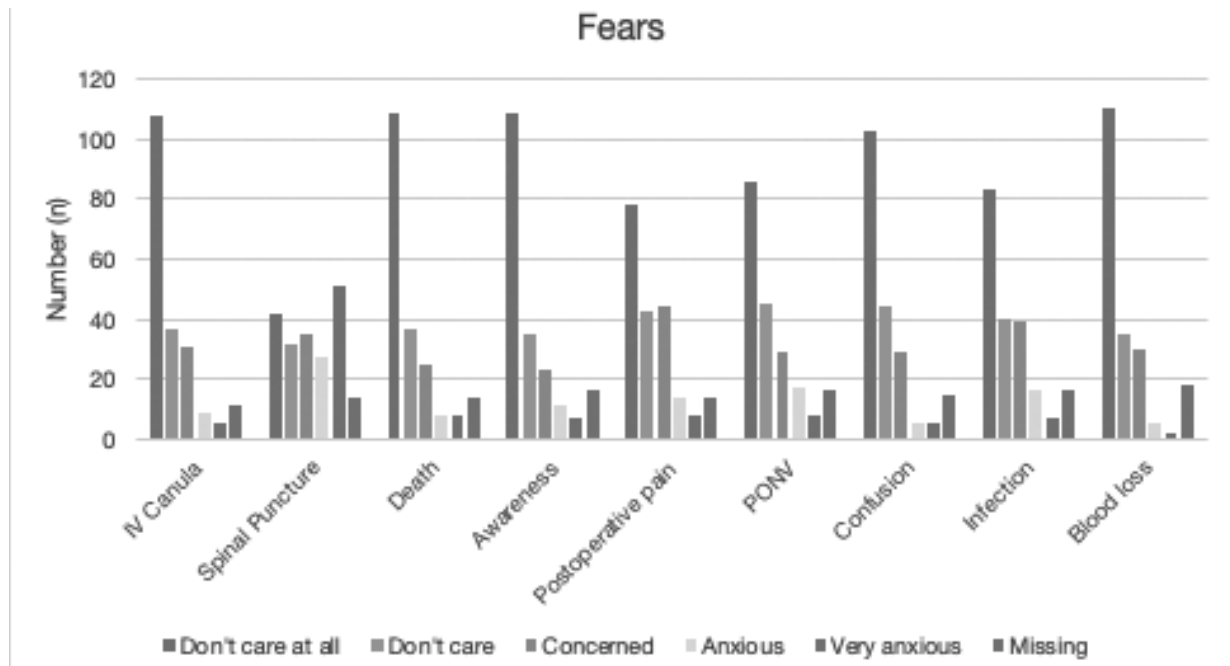


Fig. 1 — Patients' rating of fear regarding IV canula insertion, spinal puncture, death, awareness of surgery, postoperative pain, confusion, and infection. The number of patients for each rating is given.

the anesthesiologist as a medical specialist (109 patients, 54.2%). Interestingly, 23.1% of patients thought that an anesthesiologist was a surgeon.

One hundred and fifty-three (76.1%) patients already had surgery before, of which 37 (24.2%) already had a spinal anesthesia. Of this patient subgroup of 37 patients, 17 (45.9%) chose a spinal anesthesia again, 11 (29.7%) chose general anesthesia, and 9 (24.3%) patients didn't have a preference for a particular anesthesia technique. One hundred (65.4%) patients only had general anesthesia in their history. In this subgroup, only 12 patients (12.0%) preferred spinal anesthesia, 68 (68.0%) patients chose general anesthesia, and for 20 (20.0%) patients, the type of anesthesia did not matter.

DISCUSSION

In spite of limited knowledge about anesthesia techniques, the majority of patients clearly prefer general to spinal anesthesia, even if they have been unable to discuss their choice with a professional in the field. The literature shows that spinal anesthesia is associated with lower morbidity rates, lower major complication rates and, in specific subgroups, lower mortality as compared to general anesthesia (17-19). Fear of the spinal puncture, which is clearly the biggest concern or anxiety in this patient group, can explain the preference for general anesthesia. Preoperative anxiety is associated with

worse outcomes and higher postoperative pain scores in many types of surgeries (14, 7-13). Anesthesiologists play an important role in managing patients' anxieties (20). They should be aware of these anxieties and inform the patient through a preoperative consultation, a brochure or information available on the internet about risks and complications of the different anesthesia techniques. This way, anxiety feelings will probably be alleviated and a well-judged decision about their anesthesia technique can be made.

We see no difference in preference for anesthetic technique between patients who got preoperative information and those who did not. A possible explanation for this is the source of information. Seventy-six of the 91 patients (83.5%) who were preoperatively informed received information from a surgeon, the general practitioner or a nurse. Only 15 patients (16.5%) actually spoke to an anesthesiologist, which is the only specialist in this field. If patients are provided with more profound information comprising an elucidation of the advantages and disadvantages of each technique, and provided by the anesthesiologist himself, the distribution of preferences would possibly tend towards a higher preference for spinal anesthesia.

Patients who already had spinal anesthesia before chose a spinal again for this procedure in 45.9% of the cases. Patients who only had general anesthesia in history preferred a spinal in 12.0% of the cases. We can conclude that patients who

already had a spinal puncture before are more likely to choose a spinal puncture again. This indicates the subjective character of the fear for a spinal puncture. A spinal puncture seems not as terrible as many people think before they experienced it themselves.

Recent research in patients undergoing knee or hip arthroplasty surgery shows that a preoperative consultation can significantly influence the choice of the anesthesia technique (20). Unfortunately, patients only recall very little of what they are told during the preoperative anesthesia consultation, despite detailed explanation about the procedure and perioperative care (15-16). Informed consent has evolved as an important aspect in all fields of modern medicine, where patients have been accorded the right to make decisions about their treatment. This should be based on appropriate explanation and advice, and anesthesiologists should therefore aim to inform patients as fully as possible, whilst at the same time respecting their judgement.

Informing patients about the procedures they will undergo is a cornerstone in managing their concerns and fears. Nevertheless, a certain level of anxiety during the procedure itself is often inevitable. There is a wide range of described techniques to reduce anxiety, going from specific communication techniques, to music or virtual reality devices, which can alleviate anxiety and augment the comfort of patients during invasive procedures (such as the placement of an IV cannula or a peripheral nerve block) (21-24).

The results of this study suggest that the general public still has many misunderstandings about anesthesia. Anesthesiologists often have only a short-lasting contact with patients, and only rarely see their patients before the anesthesia itself. Especially in an ambulatory setting, with a healthy patient population, a preoperative anesthesia consultation is not always performed or necessary. Of course, in many hospitals or anesthesia services, patients can have access to information about their anesthesia through websites, information brochures or other channels. These formats, however, do not entirely resolve the problem and do not allow a patient/anesthesiologist relationship to be established. Hardly half of the patients recognize the anesthesiologist as a medical specialist, which shows the ignorance in the patient population about the nature of the anesthesiologists' work.

This study was conducted in a Belgian population. For this reason, our results may not be applicable to other cultures or countries, which can be considered as a limitation. We have to be careful

when interpreting the information gathered from the analysis of the subgroup of patients having had previous spinal anesthesia, because of the small sample size.

CONCLUSION

Most patients have a clear preference for a specific technique, and most of them prefer general over spinal anesthesia for ambulatory arthroscopy of the knee. Fear of a spinal puncture is not to be underestimated, and can help explain this difference. Anesthesiologists should be aware of these anxieties. They should try to inform their patients as completely as possible, and to answer any concerns, as well as provide advice. Patients can therefore make a well-judged decision about anesthetic technique, thus improving their satisfaction with the offered treatment. Despite the growing interest in preoperative assessment and the importance of patient information, however, many misunderstandings about anesthesia still remain.

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