

# Patient refusal for regional anesthesia in elderly orthopedic population: A cross-sectional survey at a tertiary care hospital

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## Abstract

**Background and Aims:** Improvements in pain management techniques in the last decade have had a major impact on the practice of orthopedic surgeries, for example, total hip arthroplasty and total knee arthroplasty. Although there are a number of treatment options for postoperative pain, a gold standard has not been established. In our institution, both general anesthesia and regional anesthesia (RA), are being offered to the elderly orthopedic population but RA is not frequently accepted by elderly population. The objective of this study was to determine the frequency of various reasons for refusal of RA in elderly patients undergoing orthopedic surgeries.

**Material and Methods:** A prospective study conducted over a period of 1 year, had 549 patients with ages above 60 years who underwent different types of elective orthopedic procedures 182 patients who refused RA were interviewed according to a structured questionnaire designed to assess the reasons of refusal.

**Statistical Analysis:** Frequencies and percentages were computed for categorical variables. Chi-square test was applied to compare proportion difference of reasons for refusal of RA between gender, age groups, occupation, and previous history of anesthesia.

**Results:** Most common reason for the refusal of RA was surgeon's choice (38.5%), whereas 20.3% of the patients were unaware about the RA. There was a significant association between female gender and refusing RA due to backache (17.2%) and fear of being awake during the operation (24.1%) respectively.

**Conclusion:** This survey showed that the main reasons among elderly female population were the fear of remaining awake and backache. However, overall it was the surgeon's choice which made patients refuse RA, and the anesthesiologists were the main source of information.

**Key words:** Elderly population, orthopedic procedures, refusal for regional anesthesia

## Introduction

Regional anesthesia (RA) has its place in the perioperative pain management of orthopedic patients.<sup>[1]</sup> It provides better analgesia, facilitating early rehabilitation, and discharge. General anesthesia (GA) has been the "gold standard" for surgeons and patients for major surgeries. However, recent introduction of improved techniques and catheters

for continuous peripheral nerve blocks have made RA more attractive to the patients and surgeons.<sup>[2]</sup> In many centers, RA techniques are used extensively for orthopedic procedures,<sup>[3]</sup> yet at the same time in current clinical practice patient's refusal is considered the most common contraindication of RA.

Improvements in pain management techniques in the last decade have had a major impact on the practice of total hip arthroplasty and total knee arthroplasty. Though there are several treatment options for postoperative pain are available, but the gold standard has not yet been established.<sup>[3]</sup> Either GA or epidural anesthesia provide satisfactory anesthesia for outpatient knee arthroscopy, and the choice of anesthetic technique may be primarily dependent on the patient's desire.<sup>[4]</sup>

Patient satisfaction has become an important endpoint in outcomes research.<sup>[5-8]</sup> In the field of anesthesiology, assessment of patient satisfaction may be an important outcome

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measurement and indicator of quality of anesthesia care,<sup>[7,9]</sup> however patient satisfaction is a multidimensional concept with determinants which are not yet clearly defined.<sup>[8]</sup> Studies have revealed dissatisfaction and refusal with spinal anesthesia for common reasons such as backache, postoperative nausea vomiting, pain at the puncture site, inadequate analgesia, consciousness during the operation, postdural puncture headache, transient neurological symptoms, and urinary retention.<sup>[10]</sup>

In our institution, a tertiary care hospital of Pakistan, both GA and RA are being offered to the elderly orthopedic population. At present, RA is frequently refused by elderly population.<sup>[11]</sup> Previous bad experiences of RA, fear of having backache or headache during operation might be some of the reasons for choosing GA in our population.<sup>[12]</sup> It has also been observed that patient's preference for the type of anesthesia is based on many misconceptions regarding the safety of conduct of RA. We still need to know the specific reasons for the patient's refusal of RA, in order to improve the quality of anesthesia and to strengthen the relationship between anesthesiologist and their patients. The objective of this study was to determine the frequency of various reasons for refusal of RA in elderly patients undergoing orthopedic surgeries.

## Material and Methods

This prospective cross-sectional survey was completed over a period of 1 year. After approval from the Ethics Committee, all elective orthopedic procedures, both gender with ages 60 years and above were included in the study. Those who denied to participate in the survey, patients with a known contraindication to RA, mentally incompetent patients, patients with psychological disorders or on medications and those with the language barrier were excluded. The patients who were scheduled for orthopedic surgeries, were evaluated in the preoperative anesthesia clinic and explained about the GA and RA technique (risks and benefits), were included in this survey, and only those were interviewed who refused RA. The structured questionnaire, which was designed to assess the reasons why elderly patients refuse RA, was filled by the primary investigator in the ward, mainly in Urdu (national language). The sequence of the questions was followed according to the structured design of the questionnaire, and it was deposited to the departmental research cell on the same day.

Data were entered and analyzed on Statistical Packages for Social Science Ver. 19 (SPSS Inc., Chicago, IL, USA). Frequencies and percentages were computed for categorical variables such as gender, American Society of Anesthesiologist

status, occupation, past history, type and sources of knowledge of anesthesia, reasons for refusal of RA. Mean with a standard deviation of age were also computed. Effect modifier such as age, gender, occupation, and past history were controlled by stratification techniques to observe the outcome. Chi-square test was applied to compare proportion difference of reasons for refusal of RA between gender, age groups, occupation, and previous history of anesthesia.  $P < 0.05$  was considered as significant.

## Results

During 1 year period, 549 patients with ages above 60 years who underwent different types of elective orthopedic procedures were enrolled, and 182 patients (33.1%) were selected for this study according to the inclusion and exclusion criteria. The demographic and characteristics of the study are given in Table 1. Out of 182 patients, 51.6% had a previous history of surgery, out of which 70.2% had GA last time. Only 9.6% patients had a history of RA previously [Table 2]. In 38.5% population, the surgeons did not want their patients to have RA [Figure 1]. However, anesthesiologists (residents 38.5% and consultants 40.1%) were found to be the major source of information provider to them [Figure 2].

Rate of refusal due to backache was 13 times more in females as compared to males (odds ratio [OR] = 13.52; 95% confidence interval [CI]: 1.77-103.4). Similarly, refusal due to fear of being awake during the operation was also 3 times more likely in females than in males (OR = 3.18,

**Table 1: Demographic and characteristics of study participants**

| Characteristics     | Relevant statistics | Range/percentages |
|---------------------|---------------------|-------------------|
| Age (years)         | 69.60±7.76          | 60-88             |
| Gender              |                     |                   |
| Male                | 66                  | 36.3              |
| Female              | 116                 | 63.7              |
| Occupation          |                     |                   |
| Housewife           | 105                 | 57.7              |
| Employed            | 12                  | 6.6               |
| Retired             | 50                  | 27.5              |
| Business            | 15                  | 8.2               |
| ASA status          |                     |                   |
| I                   | 16                  | 8.8               |
| II                  | 108                 | 59.3              |
| III                 | 54                  | 29.7              |
| IV                  | 04                  | 2.2               |
| Procedure performed |                     |                   |
| Upper limb surgery  | 9                   | 4.9               |
| Lower limb surgery  | 173                 | 95.1              |

\*Data are presented as mean ± SD and n (%), SD = Standard deviation, ASA = American Society of Anesthesiologists

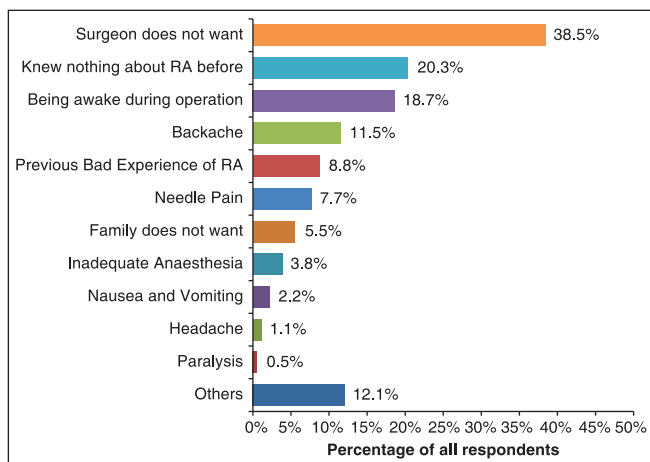


Figure 1: Reasons of refusal of regional anesthesia (n = 182)

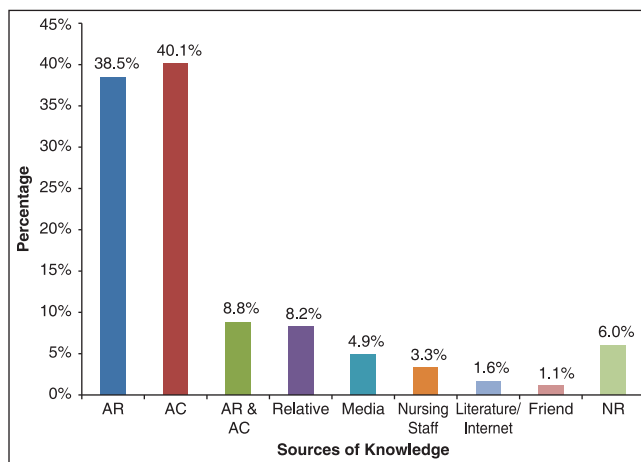


Figure 2: Sources of knowledge of the patients. AR = Anesthesiologist resident, AC = Anesthesiologist consultant, PS = Primary surgeon, NR = No response

Table 2: Past history, knowledge, and choice of anesthesia of patients for surgery (n = 182)

| Past history and anesthesia               | Frequency | Percentage |
|---|-----------|------------|
| Past history of surgery of patients       |           |            |
| Yes                                       | 94        | 51.6       |
| No  | 88        | 48.4       |
| Type of anesthesia in past surgery (n=94) |           |            |
| GA  | 66        | 70.2       |
| RA  | 9         | 9.6        |
| Both RA and GA                            | 10        | 10.6       |
| Do not remember                           | 9         | 9.6        |
| Knowledge about type of anesthesia        |           |            |
| Known                                     | 130       | 71.4       |
| Don't know                                | 52        | 28.5       |
| Patient's choice regarding RA             |           |            |
| Accept                                    | 2         | 1.1        |
| Denied                                    | 158       | 86.8       |
| Up to anesthesiologist                    | 6         | 3.3        |
| Up to surgeon                             | 16        | 8.8        |

\*Data are presented as mean ± SD and n (%), SD = Standard deviation, GA = General anesthesia, RA = Regional anesthesia

95% CI: 1.24-8.15) as shown in Table 3. Overall, the reason for refusal among the elderly population was previous bad experience [Table 4].

## Discussion

It has been observed earlier that elderly patients in our institution prefer GA. This preference is based on many misconceptions regarding the safety of conduct of RA, as well as their preference being influenced by surgeons.

Many studies have been done on RA, its conduct and patient's satisfaction regarding RA world over, but fewer data is available on the reasons why elderly patients undergoing orthopedic procedures refuse RA in our part of the world especially in the developing countries.

In our study, 63.7% of the female patients refused RA for different orthopedic surgeries. This is higher when compared to the study conducted by Rhee *et al.* in which they found out that 43.7% of females refused RA.<sup>[10]</sup> Another study by Matthey *et al.* showed 49.3% of the general public preferred GA, among which 50% were females.<sup>[13]</sup> However, Dove *et al.* in their study demonstrated that 74% females preferred GA over RA but the population they included did not specifically address the elderly patients.<sup>[14]</sup> In our survey, approximately 58% patients were housewives. Ahmad and Afshan had similar results where females who were housewives had less knowledge regarding the options of anesthesia.<sup>[12]</sup> This shows that overall in our population there is a higher rate of refusal for RA among housewives. Our study design did not permit to explore in detail the reasoning behind this observation, neither patients were asked about their level of education nor were they looked upon to have an association between education and refusal.

Almost 86.8% denied having RA for their surgical procedure in our survey, 51.6% had a previous history of surgery, 70.2% patients experienced GA, whereas 10.6% had received both GA and RA. Dove *et al.* have shown that the number of previous anesthetic or any other complication does not influence the preference for future anesthesia.<sup>[14]</sup> In their study, only 22% patients with previous RA preferred GA for hip replacement surgery and 16% patients preferred GA for arm surgeries. In another study, there was no significance of previous history of anesthesia and the preference for future anesthesia technique, despite the authors themselves commenting that the previous surgery should have increased patient's knowledge regarding anesthesia.<sup>[15]</sup> However, there are some other studies in which researchers have shown that

**Table 3: Comparison of likelihood of reason between male and female**

| Reasons for refusal of RA        | Female n = 116 (%) | Male n = 66 (%) | P values | OR    | 95% CI of OR |
|----------------------------------|--------------------|-----------------|----------|-------|--------------|
| Needle pain                      | 10 (8.6)           | 4 (6.1)         | 0.53     | 0.68  | 0.21-2.27    |
| Backache                         | 20 (17.2)          | 1 (1.5)         | 0.001*   | 13.52 | 1.77-103.4   |
| Headache                         | 2 (1.7)            | 0 (0)           | 0.54     | NA    | —            |
| Paralysis                        | 1 (0.9)            | 0 (0)           | 0.99     | NA    | —            |
| Nausea and vomiting              | 4 (3.4)            | 0 (0)           | 0.29     | NA    | —            |
| Being awake during the operation | 28 (24.1)          | 6 (9.1)         | 0.012*   | 3.18  | 1.24-8.15    |
| Previous bad experience of RA    | 9 (7.8)            | 7 (10.6)        | 0.51     | 0.71  | 0.25-2       |
| Inadequate anesthesia            | 2 (1.7)            | 5 (7.6)         | 0.101    | 0.21  | 0.04-1.14    |
| Knew nothing about RA before     | 19 (16.4)          | 18 (27.3)       | 0.07     | 0.52  | 0.25-1.08    |
| Surgeon does not want it         | 42 (36.2)          | 27 (40.9)       | 0.53     | 0.82  | 0.44-1.52    |
| Family do not want it            | 7 (6)              | 3 (4.5)         | 0.75     | 1.34  | 0.34-5.4     |

\*Data are presented as frequency (%), †OR = Odd ratio, \*P < 0.05 significant, RA = Regional anesthesia, CI = Confidence interval, NA = Not applicable

**Table 4: Association between reasons of refusal of RA and age of the patients**

| Reasons for refusal of RA        | >65 years n = 113 (%) | ≤65 years n = 69 (%) | P values | OR    | 95% CI of OR |
|----------------------------------|-----------------------|----------------------|----------|-------|--------------|
| Needle pain                      | 108.8                 | 45.8                 | 0.45     | 1.58  | 0.47-5.24    |
| Backache                         | 108.8                 | 1115.9               | 0.14     | 0.51  | 0.21-1.27    |
| Headache                         | 10.9                  | 11.4                 | 0.72     | 0.61  | 0.37-9.86    |
| Paralysis                        | 0                     | 11.4                 | 0.19     | NA    | —            |
| Nausea and vomiting              | 32.7                  | 11.4                 | 0.59     | 1.85  | 0.18-18.19   |
| Being awake during the operation | 2320.4                | 1115.9               | 0.46     | 1.34  | 0.61-2.97    |
| Previous bad experience of RA    | 54.4                  | 1115.9               | 0.008*   | 0.24  | 0.08-0.74    |
| Inadequate anesthesia            | 43.5                  | 34.3                 | 0.78     | 0.81  | 0.17-3.72    |
| Knew nothing about RA before     | 2320.4                | 1420.3               | 0.99     | 1.004 | 0.47-2.13    |
| Surgeon does not want it         | 5145.1                | 1826.1               | 0.01*    | 2.33  | 1.21-4.48    |
| Family do not want it            | 65.3                  | 45.8                 | 0.88     | 0.99  | 0.25-3.35    |

\*Data are presented as frequency (%), †OR = Odd ratio, RA = Regional anesthesia

the incidences of many common fears about anesthesia vary widely between patient populations which were chosen.<sup>[13]</sup>

Interestingly it was the surgeons, who did not want their patients to have RA in our study (38.5%), other reasons were no knowledge regarding RA (20.3%), being awake during the operation (18.7%) and fear of having backache (11.5%). This can be explained by the fact that majority of the patients in our population who come for any procedure are first seen by surgeons or physicians being their primary care providers and anesthesia personals only see them when they are planned for a procedure. The surgeons have a major impact on patient's preference, and it does influence patient's choice regarding anesthesia technique. Not only in our country but in other parts of Asia too patients have similar concerns and reasons for refusal,<sup>[10]</sup> which is in contrast to the studies done in developed countries where the orthopedic surgeons direct their patients to choose RA. According to Oldman *et al.*, the choice of technique was influenced by subspecialty and by the surgeon's perceptions about anesthesia. The principal reasons for not favoring RA were delays in the induction of anesthesia and an unpredictable success rate.<sup>[11]</sup> Similarly, Rhee *et al.* also

showed that 84% surgeons, in contrast to our study, would prefer RA for their patients.<sup>[10]</sup>

It was found that the major source of knowledge regarding anesthesia options were the anesthesiologists (residents 38.5%, consultants 40.1%). This has also been mentioned by Ahmad and Afshan,<sup>[12]</sup> however this is in contrast to a study done by Mittal *et al.* where 61% participants had gained all the available information from personal experience.<sup>[15]</sup> This contrast could be due to the reason that their sample population was nonsurgical outdoor patients and while the survey was conducted they were not guided by the surgeons to preoperative clinic. Our results show that despite anesthesiologist being the primary source of knowledge, patients still chose GA, which partly is because of influence of surgeon, and secondly anesthesiologist allows patient to choose their anesthesia and do not enforce them.

Rate of refusal due to backache and fear of remaining awake during the operation were more in females than in males in our study. This has also been shown in previous studies. Rhee *et al.* showed that 36.8% of their population had

a fear of remaining awake, whereas 26.3% had a fear of backache.<sup>[10]</sup> In another study, Dove *et al.* also demonstrated that the fears of feeling pain and hearing or seeing the surgery were prominent, particularly among female patients and as per their study females showed more preoperative anxiety and concern.<sup>[14]</sup> Many other studies stated that this reason is mainly based on the misconception and poor knowledge about anesthesia.<sup>[12]</sup>

Despite the fact that electronic media along with medical services have made advancements to the extent that now everyone is aware of the procedure they need to undergo and its complications, a common man still lacks in their knowledge regarding RA and peripheral nerve blocks. Our study showed that regardless of age, our population is aware of RA but usually leave their decision for the choice of option on their surgeons.

Second, anesthesiologists were the primary source of knowledge and information to patients in our setup, but they could not implement and be decisive about the choice of anesthesia, as the one who sees the patient preoperatively, and those who are the primary anesthesiologist may be different. Excluding epidural and spinal anesthesia, the expertise in regional nerve blocks is scarce. This might be the reason why sometimes no direction is specified for patients, and it is left on surgeons, primary anesthesiologists and on patients to choose on their own. Likewise, it is also necessary that the surgeons be educated about the importance of RA, so that they can inform their patients about its role and significance. Anesthesiologists being the perioperative physician, require to have a proper public education program, to strengthen the relationship with the general population as also suggested by other studies.<sup>[16,17]</sup> Further, there is a need to know the orthopedic surgeons perspective about their preference for GA to RA.

## Conclusion

It was found that about 33.1% elderly patients scheduled for elective orthopedic procedures refused to have RA, majority of them were females. Male versus female trend for refusal is different in our population. Main reasons among elderly female population are the fear of remaining awake and backache however it was mainly the surgeon's choice which made patients refuse RA.

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