



Does spinal anesthesia increase the pain and anxiety after total knee arthroplasty? a randomized prospective study

Spinal anestezi total diz artroplastisi sonrası ağrı ve kaygıyı artırır mı?
Randomize prospektif çalışma

Mustafa S. Aksoy, M.D.,¹ Murat Bozkurt, M.D.,² Emrah Sayıt, M.D.,³
Serhan Ünlü, M.D.,⁴ Hasan Karadağ, M.D.⁵

¹Department of Anesthesiology and Reanimation, Medical Faculty of Yıldırım Beyazıt University, Ankara, Turkey

²Department of Orthopedics and Traumatology, Atatürk Training and Research Hospital, Ankara, Turkey

³Department of Orthopedics and Traumatology, Muradiye State Hospital, Van, Turkey

⁴Department of Orthopedics and Traumatology, Dışkapı Training and Research Hospital, Ankara, Turkey

⁵Department of Psychiatry, Dışkapı Training and Research Hospital, Ankara, Turkey

Objectives: In this study, postoperative pain and anxiety level of the patients who were scheduled for spinal anesthesia (SA) and remained awake during the operation and patients who were scheduled for general anesthesia (GA) and were asleep during the operation were assessed.

Patients and methods: Thirty-six patients who underwent total knee arthroplasty in our clinic were randomly divided into two groups. The first group (SA group) was given spinal anesthesia during operation (heavy marcaine), while the second group (GA group) underwent general anesthesia (propofol + nitric oxide). Hospital anxiety-depression (HAD) scores and visual analog scale (VAS) scores of the patients were calculated postoperatively. The patients were asked to score anxiety by the physicians.

Results: The mean postoperative HAD score was 24.68 in GA group, and 29.62 in SA group ($p>0.05$). The physicians score for patients' anxiety after surgery was 1.05 in GA group, and 1.69 in SA group ($p<0.05$). The mean postoperative VAS of the patients was 8.42 in GA group, and 8.87 in SA group ($p>0.05$). No statistically significant differences were found between the SA group and GA group in terms of HAD scores. No significant differences were found between the mean postoperative VAS scores of the groups. A statistically significant difference was found between the two groups for the physician's score for patients' postoperative anxiety.

Conclusion: Our study results showed that total knee arthroplasty under spinal anesthesia was not associated with mood changes in patients and no increase in postoperative pain was seen.

Key words: Anxiety; spinal anesthesia; total knee arthroplasty.

Amaç: Bu çalışmada ameliyat sırasında uyanık kalan ve spinal anestezi (SA) planlanan hastalar ile ameliyat sırasında uyuyan ve genel anestezi (GA) planlanan hastaların ameliyat sonrası ağrı ve kaygı düzeyleri değerlendirildi.

Hastalar ve yöntemler: Kliniğimizde total diz artroplastisi uygulanan 36 hasta rastgele iki gruba ayrıldı. Ameliyat sırasında birinci gruba (SA grubu) spinal anestezi (heavy markain), ikinci gruba (GA grubu) ise genel anestezi (propofol + nitrik oksit) uygulandı. Hastaların ameliyat sonrası hastane kaygı-depresyon (HAD) skoru ve görsel analog ölçeği (GAÖ) skoru hesaplandı. Hastalara hekimler tarafından anksiyete skoru soruldu.

Bulgular: Ortalama ameliyat sonrası HAD skoru GA grubunda 24.68, SA grubunda ise 29.62 olarak hesaplandı ($p>0.05$). Hekimler tarafından yapılan ameliyat sonrası hastaların kaygı skoru GA grubunda 1.05, SA grubunda 1.69 idi ($p<0.05$). Hastaların ortalama ameliyat sonrası GAÖ değeri GA grubunda 8.42, SA grubunda 8.87 idi ($p>0.05$). Hastane kaygı-depresyon skoruna göre GA grup ile SA grup arasında istatistiksel olarak anlamlı farklılık bulunamadı. Gruplar arasında ameliyat sonrası ortalama GAÖ değerine göre anlamlı bir farklılık bulunamadı. Hekimler tarafından yapılan hastaların ameliyat sonrası kaygılarını ölçen skorda iki grup arasında istatistiksel olarak anlamlı farklılık bulundu.

Sonuç: Çalışma bulgularımız, spinal anestezi altında total diz protezi yapılan hastaların duygu durumlarında herhangi bir değişiklik olmadığını ve ameliyat sonrası ağrılarında artma saptanmadığını gösterdi.

Anahtar sözcükler: Kaygı; spinal anestezi; total diz artroplastisi.

Major or minor surgical initiatives are stressful situations for all patients.^[1-3] In addition to the stress of primary disease, patients' fear of feeling pain during the operation triggers anxiety. To reduce patients' perioperative anxiety, listening to music^[4] or watching a movie/video of the operation on a monitor have been proposed by various researchers although some researchers claim that none of these have any effects on reducing anxiety.^[5-8] It is also known that anxiety affects the detection of pain.^[9] Reducing patients' anxiety reduces the amount of drugs used during anesthesia^[10] and increases patient satisfaction in the postoperative period.^[6] During total knee arthroplasty, noisy drilling cutting devices are used. Patients with spinal anesthesia are exposed to that sound and to contact of the devices without any pain during the operation.

In this study, postoperative pain and anxiety of the patients who received spinal anesthesia (SA) and were awake during the operation and of the patients who received general anesthesia (GA) and were asleep during the operation were assessed.

PATIENTS AND METHODS

This was a prospective randomized study approved by the Ankara Dışkapı Yıldırım Bayezit Training and Research Hospital Ethics Committee. Patients with stage IV knees according to the Kellgren-Lawrence score (0-4) were included in the study. Informed consent was obtained from each patient. Thirty-six patients scheduled for total knee arthroplasty at our clinic were randomly divided into two groups. The mean age of the patients was 67.9 years (range; 62-77 years) in spinal anesthesia (SA) group, and 67.2 years (range; 58-78 years) in general anesthesia (GA) group. All patients were hospitalized for at least three days before the surgery. Patients with severe systemic and psychiatric diseases were not included in the study. All the patients were assessed by an anesthetist preoperatively, and all of them were included in low-medium risk group. All patients received sedative premedication. Spinal anesthesia was introduced at the L3-4 range using a 27 G spinal needle with heavy marcaine (Marcaine® Spinal heavy, 0.5%, 4 mL ampule, AstraZeneca). Spinal anesthesia was unsuccessful in one patient, and general anesthesia was applied before the surgery. None of the patients had any complications related to the anesthetic drug. All patients were transported to their beds after waiting in the recovery room some time until they were fully awake. None of the patients required intensive care. A patient with thrombophlebitis that developed postoperatively was excluded. On the second postoperative day, all patients were interviewed to fill out a form for hospital

anxiety-depression (HAD) scores,^[11] and the score sheet prepared for this study was used by the physician to assess patients' postoperative anxiety and concern. Moreover, the patients were requested to score their pain sensation between 0 and 10 (visual analog scale; VAS).

Statistical analysis

Mann Whitney U-test was used for comparisons of two independent groups. $P < 0.05$ was considered statistically significant. SPSS (SPSS Inc., Chicago, Illinois, USA) version 11.5 statistical package was used in statistical calculations.

RESULTS

In the GA group, the mean postoperative HAD score was 24.68, and in the SA group, the mean postoperative HAD score was 29.62 ($p > 0.05$). The mean score of physician's evaluation of patients' postoperative anxiety and concern was 1.05 in the GA group and 1.69 in the SA group ($p < 0.05$). The mean postoperative VAS value was 8.42 in GA group and 8.87 in SA group ($p > 0.05$). In conclusion, no statistically significant difference was found between the SA group and GA group for HAD scores. Moreover, based on VAS values, no statistically significant differences were found between the two groups for postoperative pain sensation. However, there was a statistically significant difference between the two groups for postoperative anxiety and concern as assessed by the physician.

DISCUSSION

The reviewed literature reveals no prospective and randomized studies on the stress experienced by patients who receive spinal anesthesia. Based on our clinical observations in orthopedic surgery, spinal anesthesia exerts a negative psychological effect on patients. Therefore, this study was to test our hypothesis. Many studies and proposals to reduce perioperative anxiety and postoperative pain have been made.^[12,13] Nilsson et al.^[14] had their patients listen to music during and after surgery. Luck et al.^[15] recommended giving video supported information to patients before the procedure. Bayar et al.^[6] had their patients watch the surgery from a monitor and reported good results. Bayar et al.^[6] also reported that reducing the anxiety of patients increased the postoperative satisfaction of the patient about the sense of being cured. However, Kesari et al.^[7] reported that watching their own cystoscopy made no significant difference in patients' anxiety.

Whether there is a psychological aspect of pain has been the subject of several studies for a long-time. Taenzer et al.^[16] investigated the relationship between

psychological factors, postoperative pain and analgesic requirements. Lepage et al.^[10] claimed that exposure to music during spinal anesthesia reduces the need for sedation. In our study, no significant differences were found between the two groups for sensation of pain and anxiety levels in the SA group.

As a result, patients' awareness or being asleep during surgery does not affect their postoperative anxiety or pain sensation, but it affects the surgeons and their concerns about their patients' increasing anxiety.

One of the drawbacks of this study was the small number of subjects to generalize our conclusion. Another drawback was the low socio-cultural level of the patients which caused some difficulties in calculating scores.

The findings of our study have shown that a major surgery such as total knee arthroplasty conducted while the patient is under spinal anesthesia does not affect the emotional status of the patient and does not increase their postoperative pain. However, further studies with larger series are needed.

Declaration of conflicting interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding

The authors received no financial support for the research and/or authorship of this article.

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