ORIGINAL ARTICLE

Effect of Head and Neck Immobilization on Postspinal Headache: A Randomized Controlled Trial

Özgür Sema Culhacı, MSc, Gülçin Avşar, PhD

Purpose: *The purpose of the study was to determine the effect of head and neck immobilization on postdural puncture headache (PDPH) through the use of cervical collars.*
Design: *This was a fully randomized controlled trial.*
Method: *The sample group of the study consisted of 120 patients. Patients in the experimental group were followed up by using the appropriate cervical collar after the operation. The cervical collar was kept on until mobilization. Follow-ups of patients in the control group continued without limiting head and neck movements. Headaches of patients in the experimental and control groups at 24, 48, and 72 hours after the operation were determined.*
Findings: *The average age of the patients in the experimental group was 22.70 ± 2.72, whereas it was 22.93 ± 3.29 in the control group. The mean body mass index of the experimental group and control group was 24.24 ± 2.62 and 23.46 ± 3.03, respectively. The mean scores of the patients in the experimental and control groups on the Numeric Rating Scale were statistically significant in favor of patients in the experimental group in the interval of 24 and 48 hours ($P < .05$) and was not statistically significant after 72 hours ($P > .05$).*
Conclusion: *This study showed that prolonged immobility of the neck, in addition to bed rest, could not prevent PDPHs. The use of a cervical collar may help to delay PDPHs. may help to delay PDPHs.*

Keywords: *postdural puncture headache, spinal anesthesia, nursing care.*

SPINAL ANESTHESIA IS a central-type regional anesthesia technique characterized by temporary sense, motor, and sympathetic blockages created via the injection of local anesthetics into the subarachnoid space separately, or with other medications.[1,2] Spinal anesthesia has potential advantages in lower abdomen, perineum, and lower extremity operations. These include ease of application and a fast mode of action.[3,4] However, there are also some complications that may occur after spinal anesthesia, including hypotension, bradycardia, cardiac arrest, lumbar pain, infection, urinary retention, hearing loss, hypothermia, and postdural puncture headache (PDPH).[5]

The occurrence of a PDPH was first reported by Bier and Hildbrandt in 1898.[5] The incidence of PDPHs after lumbar puncture (LP) or spinal

Özgür Sema Culhacı, MSc, is a Nurse, Ankara Mevki Hospital, Ankara, Turkey; and Gülçin Avşar, PhD, RN, is an Adjunct Professor, Department of Fundamentals of Nursing, Faculty of Health Sciences, Ataturk University, Erzurum, Turkey.

Address correspondence to Gülçin Avşar, Department of Fundamentals of Nursing, Faculty of Health Sciences, Ataturk University, Erzurum, Turkey; e-mail address: gulcin-avsar@hotmail.com.

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anesthesia is approximately 2% to 20% and is likely influenced by the patient's age.[6,7] PDPH has many causes; one of these is the compensation of intracranial volume depletion by blood, cerebrospinal fluid (CSF), and brain tissue. When the CSF volume falls to approximately 10% of the total volume, the body tries to compensate by vasodilatation, resulting in a PDPH. In addition, PDPHs are related to the position of the body. Pain is exacerbated by sitting and standing and decreases or passes when lying on a flat bed. With the loss of CSF, the support provided by the fluid to the brain tissue is reduced, causing traction on the dura. Therefore, PDHs decrease in the supine position. When the patient remains in the supine position, this causes CSF leakage from the hole in the dura mater and decreases hydrostatic pressure while minimizing headache.[8] It has been shown that lying down in the supine position after operation decreases CSF leakage.[9] A sudden decrease in CSF pressure causes strain on pain-sensitive structures such as the dura mater, cerebral arteries and venous sinuses, and occurrence of headache.[10] A headache generally occurs 48 to 72 hours after the intervention and may continue for weeks.[11]

Postoperative care is one of the indispensable parts of professional nursing.[12] Patient comfort is mostly related to the absence or minimization of pain and side effects.[13] Therefore, it is important to take precautions against complications that may occur after spinal anesthesia, minimize possible complications, or contribute to their treatment by recognizing them in the early stage.[12] Postoperative PDPHs affect the well-being and comfort of the patient. As such, they are an extremely important part of nursing care.

Literature reported effective treatments for PDPH, including analgesics, fluid therapy, caffeine, hydrocortisone, and ergotamine/triptane therapy.[14] However, no study examining the effect of head, and particularly neck immobilization in the early postoperative period has been found. Based on this knowledge, this study examines patients who remained on bed rest for 9 hours to prevent or minimize the loss of CSF through the hole made by the needle used in spinal anesthesia in the dura mater; the purpose of the study was to determine the effect of head and neck immobilization on PDPH through the use of cervical collars within the same period.

Method

Ethical Principles of the Study

The proposal for the study was submitted to the Gülhane Military Medical Academy Ethics Committee, and Ethics Committee approval was obtained for the study. Questionnaire permission was received from the Gülhane Military Medical Academy Questionnaire Committee for evaluating the relevance of questions in the patient description form. Written official permissions were received from Ankara Mevki Military Hospital, where the study was conducted.

Place and Time of the Study

The study was conducted between January 17, 2014 and January 20, 2015. The study was conducted in the postanesthesia care unit and surgery clinics of Ankara Mevki Military Hospital. As this hospital is a military facility, most of its surgical patients are males.

Population and Sample Group

The population of the study consisted of patients who underwent surgeries with spinal anesthesia at Ankara Mevki Military Hospital. The sample consisted of 120 patients who agreed to participate and underwent surgery requiring spinal anesthesia from April 20, 2014 to July 20, 2014. The patients in the sample required orthopaedic, urology, or general surgery.

The study's inclusion criteria were as follows:

- Adults aged between 18 and 65 years; and
- Those without a history of migraine or other type of headaches.

In addition, some variables related to the patients in the sample group were kept stable, as they could affect PDPH. The variables kept constant were as follows:

- The shape and diameter of the tip of the spinal needle (25 gauge, Quincke Hayat Medical Devices, Evergreen Park, IL),