

## Post-Dural Puncture Headache - Having No Pillow Does Not Prevent It, Not Even Psychologically. Should We Try Giving Pills Instead?

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### Abstract

**Objectives:** To compare patients who received spinal anaesthesia and didn't use pillow in post-op period with those who used pillows and those who mobilised and with those who received general anaesthesia for the development of dural headache, and also neck and back pain.

**Design:** Experimental.

**Place & Duration of:** The study was conducted at the Bone and Joint hospital in Srinagar over a period of 3 months. Study

**Patients and Methods:** This study compared 201 post-op patients who were divided into 4 groups

1. Those who didn't use pillows
2. Those who used pillows,
3. Those who were mobilised,
4. The general anaesthesia group was kept as a control.

They were followed for 7 days for development of headache, back and neck pain.

**Results:** This study found no association between the lying without pillow and prevention of PDPH or any other post-operative complication.

**Conclusion:** head ache, neck, backache and other such problems were worst in the immobilised group and least in mobilised group.

**Keywords:** Back Pain; Immobilization; Neck Pain; Pillow; Post-Dural Puncture Headache

### Introduction

To anesthetize the lower half of the body, spinal anaesthesia is used and we deliver the anaesthetic into the cerebrospinal fluid

after puncturing the dura. Our anaesthetists try to aim for L3-L4 intervertebral space, which is all we need in our orthopaedic practice [1,2]. This method is most reliable for anaesthesia in orthopaedic surgeries of the limbs because of its safety, ease and effectiveness [3]. But, it has several limitations, the most important being the Post-Dural-Puncture-Headache (PDPH) following operation [4].

PDPH is a dire complication resulting from the puncture of dura mater (due to spinal anaesthesia, accidental dural puncture or lumbar puncture during diagnosis). If the natural homeostatic mechanisms aren't able to seal the puncture, the eventual result is the leakage and loss of cerebrospinal fluid into the extra dural space, unequivocally leading to the case in point, PDPH. The incidence of PDPH was quite staggering during the early days of spinal anaesthesia amounting to 66% in 1898, today it has fallen to 2%-12% with a 26G Quincke needle. 66% cases of PDPH are registered within two days and 90% within the first three days" [5,6].

International Headache Society, Headache Classification Committee defines PDPH as "bilateral headaches that develop within 7 days after a lumbar puncture and disappears within 14 days. The headache worsens within 15min of resuming the upright position, disappears or improves within 30min of resuming the recumbent position" [7]. The diagnosis is usually guided by; the history of deliberate or accidental dural puncture, existence of any neurological signs, and symptoms of postural headache. Incidence of headache in post-operative period ranges from 30% (25G needle) to 33% (22G needle), and headaches classified as PDPH range from 7% (25G) to 11% (22G) [8]. Interestingly, the statistics for the incidence of PDPH has shown a positive trend, with the frequency being reduced to a mere 11% in 1956 as against the recorded high of 66% in 1898. This is mostly as a result of the introduction of the 22G and 24G needles during this period [9]. Furthermore, the percentage incidence has seen an even greater declining trend of around 4% after the introduction of atraumatic needles [10].

A very well-known and widely practised procedure among Indian doctors is that lying flat in the bed without even a pillow can protect against the development of PDPH. Nowhere in literature is this practice supported and in fact, studies suggest quite the contrary [11]. No clinical study could be found where the onset of headache can be treated or averted by maintenance of a supine position [12]. On the other hand, restriction of patient's posture and movements creates new problems of its own like head, cervical, shoulder and back ache [13], problems of respiratory and urinary infection [14], DVT [15], pressure ulcers and problems in feeding, urinating, defecating, cleaning, conversation etc. [16].

On the other hand, restriction of patient's posture and movements creates new problems of its own like head, cervical, shoulder and back ache, [13] problems of respiratory and urinary infection [14], DVT [15], pressure ulcers and problems in feeding, urinating, defecating, cleaning, conversation etc. [16]. Infact, postural restriction has been used and is still used today by many countries and organisations as a means of torture and was used by our teachers as a means of corporal punishment.

This study was conducted to observe if there is any difference in the incidence of PDPH in patients who have received spinal anaesthesia, who were made to lie in bed without a pillow, who

lied in bed but used a pillow and those who were allowed to sit and mobilise and the authors used the patients who received general anaesthesia as controls.

## Materials and Methods

The authors included all patients above the age of seven who were operated in their hospital in the study. Patients younger than seven and patients who were not fully oriented or whose mother tongue was not Urdu or Kashmiri were not included because of their inability to understand and answer the questions properly and reliably. Patients received either spinal or general anaesthesia as per the anaesthetist's decision. The operated patients were divided into four groups. Those patients who are operated below the knee were allowed to use a pillow, turn in bed, sit and use crutches to walk. This group was called "Mobilized".

The second group was allowed to use a pillow and turn as comfortable. This group was called "Pillow". The third group was kept in bed and wasn't allowed to use a pillow. This group was called "Immobilised". The forth group included the patients who have received general anaesthesia. They were used as control. The patients were followed for first 3 post-op days and on the 7th post-op day and were questioned about the development of headache, neck, and back pain. In patients with headache, severity and relation of posture was noted. The patients with headache and postural increase in headache were considered PDPH or Dural headaches.

Those patients with at least 3 days of follow-up were considered in the study while those with 1 or 2 days of follow-up were considered "loss of follow-up"

## Result

This study included 255 patients. One patient expired in the follow-up, 53 were lost in the follow-up. Out of the remaining 201 patients, 69 received general anaesthesia, while remaining 132 received spinal anaesthesia. Out of them 48 were barred the use of pillow, 47 lied with a pillow and 37 were mobilised. Out of the 201 patients, 114 patients (30 immobilized, 26 pillow, 19 mobilized, 39 GA) were males and 87 patients (18 immobilized, 21 pillow, 18 mobilized, 30 GA) were females. In the patients who received spinal anaesthesia, 39 patients (30%) received 23G needle, 93 (70%) received 25G needle.

Out of the 201 patients, 152 patients had no headache, out of the remaining 49 (24%), 38 had simple headache without any postural association, while 11 had headaches with a postural association. Interestingly, 3 people who had received general anaesthesia also reported postural associated headache (2 mild and 1 severe headache). These 3 are included in the simple headache group. The 8 patients (4%) who had postural headache after spinal anaesthesia were classified as post-dural puncture headache or dural headaches.

The authors consider the 3 general anaesthesia patients who reported postural headache in the simple headache group. Of the 41 (38+3) patients who had simple headache, 32 had mild headache, 7 had moderate and 2 had severe headache. 15 belonged to the general anaesthesia group (2 had mild, and 1 had severe headache). Out of the remaining 26 patients who received spinal anaesthesia, 11 patients (42% OF THESE 26 PATIENTS) had received spinal anaesthesia with a 23G needle while 15 (58%) had received a 25G needle.

Intensity of the headaches was defined by asking the patients to define their headaches in terms of numbers with 0 being no headache and 10 being most severe headache –

1. Mild - 1 -3
2. Moderate - 4-6
3. Severe - 7-10

There was a female predominance among patients with a “simple” headache with 23 patients being female (out of 87 total females) while 18 being male (out of 114 total males) (p: 0.08).

There was no significant relationship of headache to age. 19 patients belonging to 7-39-year age group (19% of 7-39y group), while 22 belonged to 40-99-year age group (21%). Out of the 41 patients with simple headache, 15 belonged to the general anaesthesia group (22% OF THE 69 GA PATIENTS), 10 were from the group that lied without a pillow (21% of THE 48 completely immobilised group), while 11 patients belonged to the pillow group (23% OF THE 47 PILLOW GROUP), but only 5 (13.5% OF THE 37 MOBILISED PATIENTS) patient belonged to the mobilised group. There are a clear association between mobilisation and prevention of simple headache, while incidence of headache is immobilised, pillow and GA group was almost the same. (RR of simple headaches in Mobilised vs Immobilised).

The 8 patients (6% of THE 132 PATIENTS WHO RECEIVED spinal anaesthesia group) who had postural headache after spinal anaesthesia were classified as post-dural puncture headache. Out of them 5 had mild headache, 1 had moderate and 2 had severe headache. 2 patients (25%) had received spinal anaesthesia with a 23G needle while 6 had received a 25G needle. Dural headache was more common in younger age group with 6 of the 8 patients were under the age of 33 (6% of 7-39y group) while 2 were above 55 years (2% of 40-99y group). 5 dural headaches were in males and 3 were in females.

Out of the 8 patients, 6 were from the group that lied without a pillow (12.5% OF THE 48 PATIENTS IN THE completely immobilised group), while 1 patient with mild headache belonged to the pillow group (2% OF THE 47 PILLOW PATIENTS), and 1 (2.7% OF THE 37 MOBILISED PATIENTS) patient with mild headache

belonged to the mobilised group. (The three group Chi-squared test gives a P = 0.06). This study indicates a relationship between immobilisation without a pillow and development of PDPH. (RR of PDPH in mobilised vs immobilised: 0.22)

Regarding backache, out of the 201 patients 93 (46%) reported backache. 25 patients (52% OF THE 48 COMPLETELY IMMOBILISED PATIENTS) belonged to the immobilised group, 26 (55% OF THE 47 PILLOW PATIENTS) to pillow group, 11 (30% OF THE 37 MOBILISED PATIENTS) to mobilised group, and 31 (45% OF THE 69 GA PATIENTS) to general anaesthesia group. There wasn't much difference between the immobilised group and the pillow group probably because both were confined to supine position, it was lesser in general anaesthesia group probably because some of them were able to sit up, but backache was least in the mobilised group. (RR of backache in mobilised vs GA: 0.66, RR of mobilised vs Immobilised: 0.57. and p=0.097). Backache was more common complaint in women. Backache occurred in 43 men (38% of 114 men) and in 50 women (57% of 87 women). (RR of backache in women vs men: 1.5). Backache tended to occur more in younger men than in older, with 77% of the burden in under 50 age group, while in women backache tended to occur more in older women, with 84% of the burden in over 30 age group.

Neck pain was reported by 25 patients (12.5%). 13 were male and 12 were female. 8 (17% OF THE 48 COMPLETELY IMMOBILISED PATIENTS) belonged to the immobilised group, 8 (17% OF THE 47 PILLOW PATIENTS) belonged to the pillow group, 0 belonged to the mobilised group and 9 (13% OF THE 69 GA PATIENTS) belonged to the general anaesthesia group. Immobilised group and pillow group had 17% neck aches.

## Discussion

Headache is a common problem in post-operative period [17]. In this study headache developed in 49 patients out of 201 (24%). Out of them 41 patients had simple headache. Out of them, 78% had mild headache, 17% had moderate and 5% had severe headache. 22% of the GA group developed simple headache, 21% of completely immobilised group, 23% of the pillow group, but only 13.5% patient belonged to the mobilised group developed simple headache.

Although headache is common in post-op period, dural headache or PDPH was uncommon, headache associated with postural symptoms was only seen in 8 patients (6% of spinal anaesthesia group). There was no significant difference in the development of PDPH in the 23 and 25G needle groups. Dural headache was more common in younger age group with 75% of patients under the age of 33. 12.5% of completely immobilised group, 2% of pillow group and 2.7% of patients in mobilized group developed dural headache. Backache was also a common complaint in the post-op

period (46% of patients). 52% of the immobilised group, 55% of pillow group, 45% of general anaesthesia group developed backache but only 30% of mobilised group developed back pain. Neck pain was reported by 25 patients (12.5%). 17% of the immobilised group, 17% of the pillow group, 0 % of mobilised group and 13% of the general anaesthesia group developed neck pain.

Headache is a common problem in the post-op period and most are only mild. But it must be remembered that not all headaches are PDPH, which are uncommon. Headaches are common in all patients whether they receive general anaesthesia or spinal anaesthesia. However, mobilisation seemed to have a positive effect in the prevention of headaches. There was a clear female predominance in simple headaches.

Although PDPH are relieved by lying flat, and most patients learn this fact by themselves, but there is no definite role of lying flat in pre-op period in the prevention of headache according to literature [18-21]. The study indicates that PDPH is least in mobilised group while it was highest in the immobilized group. However, this relationship is probably due to chance only because other studies do not indicate any association between mobilisation or immobilisation and development of dural headache. However, we can safely say that lying without a pillow doesn't prevent dural headache.

Backache was very common in the post-op period, backache was least in the mobilised group. Backache was more common complaint in women than in men. In men backache tended to occur more in younger population than in older while in women backache tended to occur more in older women. Immobilised group and pillow group had 17% neck aches, probably because neck pain does not relate to use of pillow or not but rather to restriction of patient to lying posture. General anaesthesia group had lesser neck pain, probably because some of them were able to sit up and mobilise, while there were no reports of neck pain in the group that was mobilised.

It is a common notion among the anaesthetists as well as other doctors in India that using a pillow in the post-op period increases the development of PDPH, but there is no evidence to support the same. On the other hand, postural restriction and the barring of pillows and immobilization cause various significant problems in the patients like backache, neck pains (which might be nagging and extremely irritating), urinary retention, feeding problems, insomnia etc. It is our recommendation to mobilise the patients as much as possible in the immediate post-op and to return them to as normal routine as possible as soon as possible, in order to minimize their discomfort. Practices lacking scientific proof especially those that cause patient discomfort, should be avoided.

**Conflict of Interests:** There are no conflicts of interests.

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