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STUDY ON INCIDENCE OF LOWER BACK PAIN IN SUBJECTS OPERATED UNDER SPINAL ANESTHESIA

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ABSTRACT

BACKGROUND: Spinal anesthesia (SA) one of the most popular widely used regional anesthetic procedure. It is simple, cost effective and efficient technique that provides complete sensory and motor block as well as postoperative analgesia with high success rate. Recent studies suggest that preoperative LBP may be the main cause of LBP in patients who were operated on under SPA. **METHODS:** We included the subjects aged between 18-60 years who were undergoing non-obstetrical surgeries (Orthopedic, General Surgery), with no history suggestive of pre-operative LBP and injury. LBP was assessed in all the subjects. **RESULTS:** The results of our study show that, after SA, 16 (8%) subjects experienced LBP within the first week. Of these 16 subjects, 14 (87.5%) of them reported the quality of their pain, 11 (68.75%) had weak pain and 3 (18.75%) had a sharp pain. Most of the subjects complained of pain in the midline of the body. Among the 16 subjects who had post SA LBP, in 4 (25%) subjects LBP lasted less than 24 hours, in 10 (62.5%) subjects had LBP lasting for 1-7 days and 2 (12.5%) subjects had LBP lasting for more than 2 weeks. **CONCLUSIONS:** Post-spinal LBP seems to be a short-termed and self-limiting complication especially in patients without preoperative LBP. Patients with persistent LBP and those who have severe LBP should be investigated to rule out other serious conditions such as hematomas and abscesses.

INTRODUCTION:

Spinal anesthesia (SA) one of the most popular widely used regional anesthetic procedure. It is simple, cost effective and efficient technique that provides complete sensory and motor block as well as postoperative analgesia with high success rate. Several advantages of SA include a decreased incidence of deep vein thrombosis (DVT), reduced intraoperative blood loss, as well as prevention of pulmonary aspiration in case of emergency, especially in patients with potential airway problems and known respiratory diseases.1-3During the lumbar puncture during SPA, local anaesthetics are injected into the subarachnoid space (the cerebrospinal fluid), below the first lumbar vertebrae in adults.3 Spinal anaesthesia has been the preferred method for surgeries below the umbilicus, inguinal hernia repair, and gynaecology, urology, and orthopaedic surgeries, as well as has been shown to be an acceptable and safe method in the elderly and patients with underlying diseases, including chronic obstructive pulmonary disease, kidney and liver disorders, and diabetes.4-7Low back pain (LBP) is a common complication occurring in 13% to 30% of patients after full recovery from SPA Although many patients with LBP recover quickly without any specific treatment, LBP may follow a persistent course. In rare cases, LBP may be a manifestation of serious neurologic causes like epidural abscesses and hematomas. Several studies have investigated the incidence of and contributing factors involved in post-SPA LBP. In a prospective follow-up study, they included 122 subjects undergoing elective general or trauma surgery and single SPA. Among the operated subjects, 10.7% of them complained of LBP within 5 days after SPA, and LBP persisted for about 3 months in 12.3% subjects. It was Preoperative LBP variable that was responsible in these subjects who had persisted LBP for 3 months.8Recent studies suggest that preoperative LBP may be the main cause of LBP in patients who were operated on under SPA. The role of other factors, including age, gender, duration and type of surgery, patient's position during operation, and type and size of spinal needle is still a controversial issue.9-13

OBJECTIVES OF THE STUDY: The objective of the study is to determine the incidence of Lower Back Pain (LBP) in subjects undergoing non-obstetric surgeries, a 6 months' follow-up study.

MATERIALS AND METHODS: Source of data and Study design: This is a prospective 6 months' follow-up study, conducted at Dept. of Anaesthesia Noida International Institute of Medical Sciences Gautham Budh Nagar, Greater Noida, UP. Inclusion Criteria: We included the subjects aged between 18-60 years who were undergoing non-obstetrical surgeries (Orthopedic, General Surgery), with no history suggestive of pre-operative LBP and injury. Exclusion Criteria: Patients who underwent any kind of surgery within the past 3 months were treated with analgesics in the 12 hours before SPA, and those who were reluctant to continue the study were excluded. Procedure of Spinal Anaesthesia: the block was done with 3.0-3.2 ml 0.5% Bupivacaine in an 8.5% Dextrose solution combined with 25 g Fentanyl after preloading patients with 7 ml/kg Lactated Ringer's solution over 10-15 minutes. Thereafter, the patients were placed into a sitting position and preparing and draping were done. Spinal anaesthesia was performed using a 25-gauge Quincke spinal needle at either the L4 or L5 interspace after local infiltration of 2-3 ml of 2% Lidocaine. After observing spinal fluid, Bupivacaine and Fentanyl was administered into intrathecal space and patients were placed in supine position. Five to ten minutes after establishment of spinal level of block, the patients were placed into prone position. Oxygen at 2L/min via nasal cannula was administered afterwards. Intravenous Ondansetron IV was administered to patients with vomiting and for nausea if lasted more than 10 minutes. Data Collection: Demographic data and possible contributing factors, including age, gender, body mass index (BMI), type and duration of operation, size of needle, number of spinal puncture attempts, dosage of local anesthetic, previous SPA, patients' positioning during the operation, and number of hospitalization days before and after the operation, were collected. Also, LBP was investigated and recorded daily in the first week after SPA, and then for those who showed signs of LBP, data were collected weekly for a month and monthly for a year.

Follow-up: All the subjects were followed by telephone call after they were discharged from the hospital. During evaluation, post-spinal LBP was delineated from transient neurologic symptoms (TNSs) by anesthesiologists as patients with TNSs usually develop pain characterized by unilateral or bilateral radiation to buttocks, thighs, calves, and legs after an

initial full recovery.

STATISTICAL ANALYSIS: The collected data were entered into SPSS. Statistical analysis was performed by chi-square test and partial correlation coefficient. The level of statistical significance was set at P < .05.

RESULTS AND DISCUSSION: A total of 200 cases were included in our study, who had been posted for the surgical procedures. The mean age of the subjects was 44.39.12 years. Out of which 148 (74%) were males and 52 (26%) were females. The results of our study show that, after SA, 16 (8%) subjects experienced LBP within the first week. Of these 16 subjects, 14 (87.5%) of them reported the quality of their pain, 11 (68.75%) had weak pain and 3 (18.75%) had a sharp pain. Most of the subjects complained of pain in the midline of the body. Among the 16 subjects who had post SA LBP, in 4 (25%) subjects LBP lasted less than 24 hours, in 10 (62.5%) subjects had LBP lasting for 1-7 days and 2 (12.5%) subjects had LBP lasting for more than 2 weeks.

DISCUSSION: The objective of the study is to determine the incidence of Lower Back Pain (LBP) in subjects undergoing non-obstetric surgeries, a 6 months' follow-up study. Results of our study were in accordance with the studies conducted in the past. In a study conducted by Haghighi et al included 200 patients to assess post-SPA LBP in orthopaedic lower extremity surgeries, they found that LBP was reported by 12.5% of patients. Post spinal LBP in the first day, week, and month was 16%, 9%, and 3.5%, respectively. A history of previous SPA was the only factor predisposing to LBP after SPA.[14]

Similarly, a study conducted by Schwabe and Hopf showed LBP in the non-obstetrical setting within 5 days, after 3 months, and then after a year of single SPA in 122 patients. Incidence of LBP after SPA was 10.7% (n 1 4 12) within 5 days and 12.3% (n 1 4 15) after 3 months. Only 1 patient did not complain of LBP before SPA. Preoperative LBP was the only variable associated with persistent back pain after 3 months of SPA.15 Tekgül et al included patients with preoperative LBP in their study and observed that among the patients who had postoperative LBP, 78% (n 1 4 149) had a preoperative LBP. It seems that preoperative LBP significantly increases the incidence of post-spinal LBP; seeking a thorough patient history for preoperative LBP should be considered to improve patient satisfaction after SPA. However, the number of patients in the Tekgül et al study was more than that in our study, whereas the total number of the days with LBP and also the description of type of pain (weak pain) were similar. This may reveal that a small number of patients undergoing surgery under SPA experience a short-term mild to moderate LBP that is a self- limiting condition resolving within 4 to 7 days without any treatment in most patients.[16]

CONCLUSION: Post-spinal LBP seems to be a short-termed and self-limiting complication especially in patients without preoperative LBP. Patients with persistent LBP and those who have severe LBP should be investigated to rule out other serious conditions such as hematomas and abscesses.

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