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Comparision of Taylor's Approach Vs Lumbar Approach for Below Unbilicus Surgeries in Cases of Patients with Deformed Spines

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Abstract:

Background and Aim: The paramedian technique was popular in patients with abnormal anatomy. Taylor modified the paramedian technique (Taylor's approach) which is reliable and less traumatic alternative in deformed spine for establishing the subarachnoid block. The present study was aimed to compare midline lumbar approach *vs* Taylor's approach in patients with deformed spine.

Materials and methods: Total of 50 patients was included in the study had deformed spine with physical status I to III. The study conducted randomized into two equal groups of anaesthetist (A&B). Group A performed Taylor's approach as method of the subarachnoid block while Group B performed lumbar technique. Level of decrease in blood pressure, patient rated pain and satisfaction and success of neuraxial blockade compared.

Results: The success rate of neuraxial blockade was found to be 94%, patient satisfaction was 100 %, reduction in the incidence of hypotension in the Taylor's approach.

Conclusion: Excellent operating conditions with less side effect is the benefit of subarachnoid anaesthesia, however in patient with severe arthritis, anatomical problems and with scoliosis there is challenging task to perform good subarachnoid block. Taylor's approach could provide a reliable and less traumatic alternative to midline approach for lumber puncture in deformed spine.

Keywords: Subarachnoid; Taylor's approach; Paramedian; Spinal anesthesia

Introduction

Subarachnoid anesthesia provides excellent surgical operating conditions for procedures below the umbilicus[1-3]. Central neuraxial anesthesia provides great alternative to general anesthesia, patients with deformed spines and reduces the incidence of major perioperative complications including deep vein thrombosis, pulmonary embolism, blood loss, and respiratory complications[4-5]. Subarachnoid anesthetic techniques have proved to be extremely safe and require a small volume of drug, virtually devoid of systemic pharmacologic effects, to produce profound, reproducible sensory analgesia, and motor blockade[6].

Technical difficulty and multiple attempts at central neuraxial blockade are associated with a higher risk of complications, including spinal hematoma. Problems may be encountered while giving central neuraxial blockade because of the difficulty in identifying the interspinous spaces due to lumbar hyperlordosis, reduced interpeduncular distance, osteophytes formations and malformed vertebrae. There may be spinal stenosis making it difficult to perform spinal anaesthesia[7,8].

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Materials and Methods

Total of 50 patients were included in the study. All the patients were informed regarding the procedure. The written informed consent were obtained from the patients were included in the study. Study conducted randomized into two equal groups of anaesthetist (A&B). Group A performed Taylor's approach as method of the subarachnoid block while Group B performed lumbar technique. All the patients who were scheduled for the below umbilical surgeries under spinal anaesthesia were included in the study. Patient who received anti platelet drugs, anticoagulants drugs and taking cardiovascular medication, hypersensitivity to local anaesthesia and patients who were contraindicated for regional anaesthesia were excluded from the study. Taylor'sapproach is a modification of the paramedian approach for spinal anesthesia. It is carried out at L5 -S1 interspace, the largest interlaminar space of the vertebral column. Spinal needle is inserted in a cephalomedial direction through a skin wheal raised 1 cm medial and 1 cm caudal to the lowermost prominence of the posterior iliac spine. The posterior iliac spine may be located immediately anterior to the "skin dimples" often found overlying the superior aspect of sacrum. If bone is encountered on initial needle insertion than the needle is walked off the sacrum to enter the sub arachnoid space. After the cerebrospinal fluid is obtained, the sub arachnoid block is carried out. The success of block was assessed with the correct identification of the proper space along with the free flow of cerebrospinal fluid and completion of the surgery without any further supplementation of analgesia. Outcome of the block was measured by binary variable, 1 representing success and 0 representing the failure. If there were more than two attempts for block or there was discomfort to the patients, it was considered as failure.

Results

Total of 50 patients were included in the study with deformed spine anatomy due to arthritis or scoliosis. We found excellent results of teaching Taylor's approach on deformed spine for the establishment of the subarachnoid block.

Difficulty was faced initially by the participants for managing the subarchnoid block in the deformed anatomy of spine. The success rate neuraxial blockade found to be 94% with Taylor's approach in first or at least second attempt. Patient satisfaction was 100%, reduction in the incidence of hypotension in the Taylor's approach.

Discussion

The spinal anesthesia can be used to provide surgical anesthesia for all procedures carried out on the lower half of the body, lower limbs, pelvis, genitals, and perineum[8]. Patients with deformed spine due to scoliosis, kypho-scoliosis, or arthritis (osteoarthritis, rheumatoid arthritis, and ankylosing spondylitis) represent specific challenges to the anesthesiologist due to anatomical and technical difficulty for establishing the successful subarachnoid block[8,9]. The anatomic midline approach is the technique of first choice because it is often easier to appreciate and requires anatomical projection in only two plans-sagittal and horizontal and provides a relatively avascular plane. When difficulty in needle insertion is encountered due to scar tissue, arthritic changes or scoliosis of spine, one option is to use the paramedian route[10].

Taylor's approach can be successful even in cases of severe lumbosacral deformities. Intrathecal injection of a hyperbaric local anesthetic, along with the optimal position, that is the desired angle, may help achieve symmetrical and adequate motor and sensory blockade in patients with extreme spinal deformities[11].

Conclusion

In patient with severe arthritis, anatomical problems and with scoliosis there is challenging task to perform good spinal anaesthesia. Taylor's approach can provide a reliable and less traumatic alternative to midline approach for midline approach in deformed spine.

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