

Sacral Saddle Block.

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(Brief Communication)

I. Introduction

The saddle block is a popular and well known method of low spinal anesthesia. This technique provides segmental block for those parts of the perineum, buttocks and inner thighs that would touch a saddle at the time of riding a horse. Traditionally, it is performed with low dose of lumbar spinal anesthesia to block selectively the last four sacral spinal segments. It was hypothesized that administering saddle block through dorsal foramen of sacrum would avoid inadvertent block of lower limbs while providing selective segmental block and acceptable hemodynamic stability. In this study, sacral spinal anesthesia through 2nd dorsal foramen of sacrum was administered to evaluate the merits and demerits of this method.

II. Methods

With the approval of Medical Ethical Review Board and written informed consent for procedure and study, 30(Thirty) patients belonging to ASA class 1 and 11 were selected for surgeries of anus and perineum. The mean age and body weight were 47.97 ± 15.78 years and 59.23 ± 7.21 kg respectively. All patients were subjected to preoperative assessment to exclude unfit cases for spinal anesthesia. After the establishment of intravenous infusion, patients were helped to sit on the operation table, and anatomical landmarks like highest point of the iliac crest, posterior superior iliac spine, posterior inferior iliac spine, sacroiliac joint, tip of coccyx, on the both sides were identified. 2nd dorsal sacral foramen was located by a point situated two cm lateral from midline and 11 (eleven) cm cephalad to tip of coccyx at the level of posterior inferior iliac spine.

After identification of 2nd dorsal sacral foramen, standard and usual aseptic preparation was done and infiltrated with 4 ml of 1% injection xylocaine. Simple spinal needle (Spinocan® 26 Ga. x 3½ in. (90 mm) Spinal Needle, B. Braun Medical Inc) was introduced through 2nd dorsal foramen. Subarachnoid space was identified by appearance of free flow of cerebrospinal fluid through spinal needle. 0.75 ml of 0.5% bupivacaine (heavy) was injected through it.

Heart rate, blood pressure, respiration, and oxygen concentration were recorded. Upper level of sensory block was assessed by pinprick. Modified Bromage scale was used to assess onset and gradation of motor blockade. The time of onset of motor block was defined as the time gap between intrathecal injection and total loss of motor activity. The onset time of sensory blockade was defined as the interval between intrathecal injection and bilateral loss of sensation. Duration of sensory block was defined as the time interval between intrathecal injection and complete recovery of sensation. Hypotension was defined as a fall in systolic blood pressure below 100 mm of Hg. Data collected with the help of predesigned proforma were submitted for statistical analysis.

III. Results

30 (thirty) patients were administered saddle block. No change of hemodynamic profile was noted. No motor block was detected in lower limbs, but good relaxation of anal sphincter was achieved. Sensory block was only found in perineum and anal canal. Onset of sensory nerve block was detected 8.93 ± 1.25 (mean±S.D.) minutes after the intrathecal injection and lasted for an average duration of 188 ± 8.05 minutes. Average systolic blood pressure and heart rate were noted to be 116.53 ± 15.53 mm of Hg and 85.53 ± 12.44 beats/min respectively. Oxygen saturation, on average, was 99.03 ± 0.89 %.

IV. Discussion:-

Saddle block is a form of low spinal anesthesia with segmental block of last four sacral spinal nerves (S2-S5) which supply perineum, buttocks, and inner thighs. Traditionally, it is performed by low dose of spinal anesthesia by lumbar approach in sitting position of patient. This lumbar dural puncturing site is far away from its effected segments. The downward flow of local anesthetic from the dural puncture site at the level of lumbar

vertebra to effected spinal segments (S2-S5) often leads to involvement of the intervening spinal segments resulting in frequent motor block of lower limbs. To avoid such possibility, puncturing subarachnoid space through 2nd dorsal foramen is a perfect alternative.

Selective involvement of sacral spinal segments (S2-S5) while saddle block results in minimum dilatation of vasculature with hypotension occurring only rarely. This beneficial activity of this block confirms its position as the safest anesthesia even at the centers with limited facilities in developing countries. Sacral spinal anesthesia can also be an accurate method of selective segmental block at the time of neurolytic therapy for rectal cancer ¹.

The absence of the sacral canal in 5%-10% of population ² and absence of sacral hiatus in 7.7% of population ³ are the common anomalies of sacral canal. Abnormal sizes or even obliteration due to deposition of calcium are commonest anomalies of sacral foramens.⁴ Within sacrum, the needle passes initially through bony tract of intervertebral foramen and lastly through sacral epidural space of unresisting soft tissue to the subarachnoid space. This bony tract helps the spinal needle to maintain the correct direction to subarachnoid space.

Due to the fusion of first four sacral spinous processes, distortion of the sacral hiatus and other anomalies, midline approach to the dural sac within sacral canal becomes impossible in adult patients⁴. However presence of four pairs of dorsal foramens on the sacrum generally allows the spinal needle to penetrate the dural sac at the level of 2nd dorsal foramen of sacrum ⁵. Second dorsal foramen of the sacrum was selected as the point of insertion of the spinal needle into the intrathecal space as it coincides with anatomical level of termination of the dural sac. The lack of involvement of spinal segments, responsible for sympathetic outflow leads to hemodynamic stability during and after operative procedure.

V. Conclusion:-

Sacral saddle block is a better alternative to lumbar saddle block as it provides maximum hemodynamic stability for anal and perineal surgeries while minimizing the chances of inadvertent lower limb block. This technique is less technically demanding, provides high degree of success and can be replicated even at the centers with limited facilities.

Reference

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Table 1: Shows patient details along with operative details and haemodynamic status during the operation

Patient Details	Mean ± S.D.
Age (years)	47.97±15.78
Male: Female ratio	16:14
Height (cm)	161.23±7.347
Weight (Kg)	59.23±7.21
Features of nerve block in sacral saddle block	
Motor block	No motor block
Time for onset of sensory block (minutes)	8.93±1.258
Duration of sensory block (minutes)	188±8.052
Hemodynamic parameters during O.T.	
Heart rate (beat/min)	85.53±12.448
Systolic blood pressure (mm of Hg)	116.53±15.536
SpO ₂ (%)	99.59±0.33%.