

# The Comparison of Spinal Anesthesia with G/A on the Postop Hospital Stay and Analgesic requirements in Lower Abdominal Surgery

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## ABSTRACT

**Aim:** To compare the analgesic efficacy of General anesthesia (GA) with Spinal anesthesia (SA) in patients undergoing lower abdominal surgeries.

**Methods:** This was a randomized clinical trial conducted in Anesthesia and ICU Department of Avicenna Medical and Dental College Lahore from January-2019 to April-2019. A total of 80 patients who were electively planned for lower abdominal procedures having ASA I and II and age 20 to 60 years were included. Patients were allocated to SA and GA group using draw randomization. After surgery all patients were followed till hospital discharge.

**Results:** Mean duration of surgery was higher in GA group, mean duration was 99.83±17.44 minutes in GA group versus 86.43±13.45 minutes in SA group (p-value <0.001). Mean VAS pain score was significantly higher at 2 hours, 4 hours and 6 hours after surgery in GA group as compared to the SA group. VAS score at hours was 5.3±1.4 in GA versus 3.5±1.7 in SA group (p-value <0.0001). VAS after 04 hours was 5.7±1.0 in GA group versus 3.9±1.1 in SA group (p-value <0.001). VAS score after 06 hours was 5.6±0.9 in GA group versus 4.8±1.2 hours in SA group (p-value 0.001). While there was no significant difference in VAS score after 12 hours of surgery

**Conclusion:** Spinal anesthesia provides better analgesic efficacy as compared to the general anesthesia in patients undergoing lower abdominal procedures. Moreover, SA is also associated with shorter hospital stay.

**Keywords:** General Anesthesia-GA, Spinal Anesthesia-SA, Post-Operative Pain, Hospital Stay. American Society of Anesthesiologists -ASA, Visual Analogue Scale, - Intuitional Review Board-IRB

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## INTRODUCTION

Post-operative pain is a main concern after surgical procedures. If left untreated it significantly enhance morbidity after surgery. Pain has many adverse effects on physiological and physiological behaviors thereby delays recovery and prolongs hospital stay and prolonged absence from the working environment if not controlled properly.<sup>1,2</sup> Severe pain also hinders breathing (shallow breathing), impairs cough reflex, which can increase the chances of pulmonary complications. It also prolongs the duration of anesthesia and results in unplanned and explained prolonged hospital stay<sup>3</sup>.

Proper control of post-op pain has very positive effects on patient's recovery and quality of life<sup>2</sup>. Early control of pain is done either by continuous infusion or by use of IV analgesics. And these methods can only provide adequate analgesia to only 50% of the patients.

It is always very challenging to control pain after lower abdominal procedures. These procedures can be done both under spinal and general anesthesia, the choice is usually based on the benefits and risks of both techniques<sup>4,5</sup>. General anesthesia (GA) provides prolonged anesthesia but its depends on the patient's ability to endure it<sup>6</sup>. It provides adequate muscle relaxant but intubation is the major drawback of GA<sup>7</sup>. While spinal anesthesia provides better hemodynamic stability, lower dysrhythmias, low risk of hypoxia, and lower risk of aspiration of gastric contents<sup>8</sup>. However, the analgesic activity of SA is limited by dose<sup>9</sup>.

There is still controversy to use SA or GA for lower segment abdominal surgeries regarding their analgesic efficacy and hospital. The present study is designed to

compare the analgesic efficacy of GA with SA in patients undergoing lower abdominal surgeries.

## METHODS

This was a randomized clinical trial conducted in Anesthesia and ICU Department of Avicenna Medical and Dental College Lahore from January-2019 to April-2019. A total of 80 patients who were electively planned for lower abdominal procedures having ASA I and II and age 20 to 60 years were included. Written consent was taken before study participation, and approval of IRB for study was also taken. Patients having chronic diseases, or previous history of chronic pain, and those planned for emergency procedure were excluded. Patients were allocated to SA and GA group using draw randomization. One night before surgery, all patients were explained about VAS pain score and how to present their intensity of pain. After surgery all patients were followed till hospital discharge. Post-op pain and hospital stay were final study outcomes. Data of these 80 patients was entered in SPSS v23. Independent sample t-test statistics were used for comparison of post-op pain and hospital stay between the SA and GA groups.

## RESULTS

Mean age of patients, gender and per-operative ASA status were similar between the groups. Mean duration of surgery was higher in GA group, mean duration was 99.83±17.44 minutes in GA group versus 86.43±13.45 minutes in SA group (p-value <0.001) [Table 1].

Mean VAS pain score was significantly higher at 2 hours, 4 hours and 6 hours after surgery in GA group as compared to the SA group. VAS score at 2 hours was 5.3±1.4 in GA versus 3.5±1.7 in SA group (p-value <0.0001). VAS after 04 hours was 5.7±1.0 in GA group

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versus  $3.9 \pm 1.1$  in SA group (p-value  $< 0.001$ ). VAS score after 06 hours was  $5.6 \pm 0.9$  in GA group versus  $4.8 \pm 1.2$  hours in SA group (p-value 0.001). While there was no significant difference in VAS score after 12 hours of surgery (p-value 0.49). Mean hospital stay was also significantly prolonged in GA group;  $2.4 \pm 0.9$  days versus  $1.9 \pm 0.7$  days in SA group (p-value 0.006) [Table 2].

Table 1. Comparison of Baseline Variables.

Variable	GA	SA	P-value
Age	47.8±7.59	48.3±7.42	0.77
Female/Male	32/8	29/11	0.43
ASA (I/II)	27/13	28/12	0.80
Surgery duration (min)	99.83±17.44	86.43±13.45	<0.001

Table 2. Comparison of Study Outcomes.

Variable	GA	SA	P-value
VAS after 2 Hours	5.3±1.4	3.5±1.7	<0.001
VAS after 4 Hours	5.7±1.0	3.9±1.1	<0.001
VAS after 6 Hours	5.6±0.9	4.8±1.2	0.001
VAS after 12 Hours	3.5±0.7	3.4±0.6	0.49
Hospital Stay (day)	2.4±0.9	1.9±0.7	0.006

## DISCUSSION

Spinal anesthesia (SA) and general anesthesia (GA) are proven to be effective anesthetic techniques for lower abdominal procedures, both have benefits and adverse events. SA is associated with hypotension, delayed motor function recovery and urinary retention that limits its widespread use in ambulatory procedures.<sup>10</sup> While SA provides excellent motor and sensory blockage longer duration of analgesia and lower amounts of drugs used for anesthesia maintenance, moreover it's also cost-effective. It also anesthesia provides better hemodynamic stability, lower dysrhythmias, low risk of hypoxia, and lower risk of aspiration of gastric contents<sup>11,12</sup>.

In present study, we compared the analgesic efficacy of SA with GA for lower abdominal procedures. In present study, mean VAS score at hours was  $5.3 \pm 1.4$  in GA versus  $3.5 \pm 1.7$  in SA group. VAS after 04 hours was  $5.7 \pm 1.0$  in GA group versus  $3.9 \pm 1.1$  in SA group. VAS score after 06 hours was  $5.6 \pm 0.9$  in GA group versus  $4.8 \pm 1.2$  hours in SA group. While mean hospital stay was also significantly prolonged in GA group;  $2.4 \pm 0.9$  days versus  $1.9 \pm 0.7$  days in SA group.

A study conducted by Naghibi et al. compared SA with GA for lower abdominal procedures, the authors found shorter hospital stay in SA group;  $1.8 \pm 0.6$  days in SA group versus  $2.1 \pm 0.8$  days in GA group. They also found lower post-op pain in SA group. Mean VAS pain score after 02 hours was 3.41.6 in SA versus  $5.2 \pm 1.5$  days in GA group. VAS score after 4 hours was  $4.1 \pm 1.2$  in SA group versus  $5.8 \pm 0.9$  in GA group. However, the authors did not found any significant difference in VAS score after 12 & 24 hours of surgery in SA & GA groups. These results are similar to the results of our study<sup>13</sup>.

Another study conducted by Zorofchi et al. compared SA with GA in patients undergoing abdominal hysterectomy in terms of analgesic efficacy. They found mean VAS score at 0 hours of surgery  $2.25 \pm 1.61$  in SA group versus  $5.40 \pm 1.31$  in GA group. In their study VAS score after 12 hours was still significantly lower in SA group;  $2.55 \pm 1.05$  versus in  $3.85 \pm 1.42$  GA group. This is contrary to the results of present study<sup>14</sup>.

Another study by Sharaf et al have concluded that SA provides better analgesia quality for laparoscopic cholecystectomy as compared to the GA<sup>15</sup>.

## CONCLUSION

Spinal anesthesia provides better analgesic efficacy as compared to the general anesthesia in patients undergoing lower abdominal procedures. Moreover, SA is also associated with shorter hospital stay.

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