Incidence of Hypotension during Recovery from Spinal and Epidural Anesthesia

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ABSTRACT

Background: Postoperative hemodynamic complication (hypotension) can occur during recovery from spinal anesthesia. The aim of this study was to evaluate the level of blood pressure during and after applying spinal and epidural anesthesia techniques.

Methods: Forty patients were evaluated for hypotension induced by Lidocaine used in spinal or epidural anesthesia approaches. The patients were randomly assigned in the two groups and informed consent was taken. Lidocaine was injected in L4-L5 space using needle No. 23 in the spinal group and needle No. 16 in the epidural group.

Results: There was no significant decrease in systemic blood pressure before and after 10 min in both the spinal and epidural groups (p>0.05). There was also no significant difference in systolic blood pressure in the spinal group compared to the epidural group.

Conclusion: Appropriate assessment before anesthesia and perioperative adequate monitoring and preparation are important to prevent decrease in blood pressure.
Patients were randomly divided into two groups of 20 each and all patients received 500ml intra venous Ringer’s solution prior to receiving anesthesia. Lidocaine was injected in L4-L5 space using needle No. 23 in the spinal group and needle No. 16 in the epidural group. To avoid inter-patient inconsistency, height of all cases was kept constant, ranging from 155 to 160 cm. Patients with neurological or coagulation disorder, systemic hypertension, and history of psychiatric diseases were excluded from the study. Patients were put in the supine position and systolic blood pressure was measured before and after 10 minutes of administering spinal or epidural anesthesia. Data were analyzed by SPSS software and statistical comparisons between the two groups were performed using t-tests.

RESULTS
In this study, 40 patients under 50 years of age had regional anesthesia in two groups (spinal and epidural group). The mean age in spinal and epidural group was 32.1 and 36.7 years, respectively (Table 1). 50% of patients were males, and 50% of patients were female. The study subjects were predominated by Libyans in both genders.

Table 1  Age Distribution in Spinal and Epidural Groups

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>&lt;20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spinal</td>
<td>3 (15)</td>
<td>4 (20)</td>
<td>9 (45)</td>
<td>4 (20)</td>
<td>20 (100)</td>
</tr>
<tr>
<td>Epidural</td>
<td>1 (5)</td>
<td>5 (25)</td>
<td>12 (60)</td>
<td>2 (10)</td>
<td>20 (100)</td>
</tr>
</tbody>
</table>

*There were no age differences between the spinal and epidural groups (p>0.05)*

There was no significant decrease in systemic blood pressure before and after 10 min in both the spinal and epidural groups (p>0.05). There was also no significant difference in systolic blood pressure in the spinal group compared to the epidural group (see Figure 1).

DISCUSSION
In this study, both spinal and epidural anesthesia caused non-significantly reduction in blood pressure. Spinal anesthesia cause more fall in blood pressure than epidural (17.5%, 7.5%, respectively), with no significant difference in blood pressure reduction with both genders. Our study in line with previous studies that reported reduction of blood pressure after applying regional anesthesia [2,5]. This hypotension is due to a preganglionic sympathetic block, which results in vasodilator outcome and pooling of blood below the block level particularly in the inferior extremities.

REFERENCES

Figure 1. BP changes before and after the use of spinal and epidural anesthesia

Regional anesthesia using spinal and epidural approaches has cardiovascular problems which are more noticeable in the former method. These cardiovascular issues were deeply studied and concluded that the decrease of blood pressure in spinal anesthesia is more pronounced and occurs in short time. Low in blood pressure was also less intense during epidural anesthesia and was hindered in its occurrence [7]. These outcomes are comparable with those of our current study.

CONCLUSION
There were fall in blood pressure after given lidocaine in both regional anesthesia techniques. Spinal anesthesia decreases blood pressure more compared to epidural anesthesia. Appropriate assessment before anesthesia and perioperative adequate monitoring and preparation are important to prevent decrease in blood pressure.

No conflict of interest was present.