MATERIAL & METHODS
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The present study was carried out on 87 patients, admitted in various surgical wards of M.L.B. Medical College and Hospital, Jhansi during the year 1981-82.

The patients selected for study were those kept for operation by the departments of Surgery, Orthopaedics and Obstetrics and Gynaecology. The patients selected, were of ASA Grade I, between the age group of 20 to 65 years. Prior to the operation the patients were fully examined in regard of their general condition, cardio-vascular and respiratory status. They were also subjected to a detailed nervous system examination, to rule out any possibility of neurological deficit. All the necessary investigations were carried out. Sensitivity test for lignocaine preceded the operation. In each case, one of the following drugs was injected epidurally:

1. Morphine.
2. Pethidine.
3. Fortwin.
4. Fentanyl.

The total span of work comprised of two groups of patients.
Trolley for Epidural Catheterisation
Group 1 - When surgery was also carried out with epidural technique for anaesthesia. Epidural cannula used for this purpose was left in situ, to achieve post-operative analgesia by one of the above drugs introduced epidurally, as and when required.

Group 2 - Cases operated upon under general anaesthesia with epidural cannula placed for post-operative analgesia.

In the control group of patients pain relief, post-operatively, was tried with above mentioned pain killers given by conventional routes.

Epidural cannula was left for 72 hours post-operatively, where morphine, pethidine and fortwin were used, while for 12 hours in cases of fentanyl.

The patients were distributed as follows depending upon the drug used and dose given.

<table>
<thead>
<tr>
<th>Drug</th>
<th>No. of cases</th>
<th>Dose (in mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>25</td>
<td>3</td>
</tr>
<tr>
<td>Pethidine</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Pethidine</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>Fortwin</td>
<td>10</td>
<td>7.5</td>
</tr>
<tr>
<td>Fortwin</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>12</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Tuohy Needle in Epidural Space
Each drug was diluted to 10 ml. by normal saline in distilled water before injecting into the epidural space.

After recording the bio-data of the selected patients, vitals were checked in the form of pulse, blood pressure, respiratory rate and tidal volume. On entering the operation theatre, the patient was subjected to lignocaine sensitivity test. Pre-medication was given in the form of atropine 0.65 mg., fortwin 30 mg. and calomine 10 mg. intramuscularly 45-60 minutes before operation.

On the operation table again, pulse, blood pressure and respiration were checked and the patient was made to sit up, supported by a person, after starting the intravenous infusion with 5% dextrose d/w. The back was thoroughly painted with savlon, spirit and iodine and draped. The position of the patient adopted was in the form of flexed vertebral column with arms crossed in front of chest. The vertebral space chosen was corresponding with the centre of the dermatome needing anaesthesia, or the widest interspinous space. A skin wheal was made, mid point between the tips of adjacent spinous processes, with a 25 gauge needle, using 5% xylocaine.
The sub-cutaneous tissue and the supraspinous and interspinous ligaments were also anaesthetized with the same dilute anaesthetic, using a 22 gauge, 5 cm. needle. A small cruciate incision was made at the site, in the centre of which Tuohy needle was inserted for epidural puncture. This procedure was essential to avoid the kinking of canula, after removing the needle. Needle in the epidural space was marked by sudden loss of resistance, and permitting easy passage of air through syringe. No cerebro-spinal fluid or blood came out, when sucked back. Till the ligamentum flavum was pierced the bevel of needle was kept laterally and after that it was made to point upwards or downwards depending upon the site of operation. The patency of the canula was checked and the tip was inserted into the needle and advanced. Resistance was encountered when the distal end of the canula passed beyond the bevel of the needle. This was overcome with slight additional force. Once the point of canula was beyond the needle, it was advanced to about 5 cm. The needle was gently removed, and the canula was fixed with leucoplast. The free end of the canula was fixed in front of the shoulder. The patient was made to lie down on his/her back.
Canula - Fixation
For group 1 patients, 1.5% lignocaine, 15-20 ml. was given through epidural canula for anaesthesia during operation. In the post-operative period, when the patient complained of pain, the selected drug was injected epidurally, procedure being repeated every time when patient felt pain. After 10-15 minutes of the injection, the pulse, blood pressure, respiratory rate, tidal volume and the level of analgesia were recorded. The patient was examined for any sensory or motor loss. Thirty to forty five minutes after it, again respiration, pulse and blood pressure were checked.

For group 2 patients, the canula was inserted and anchored in the same manner. No drug was used before or during the operation epidurally. Post-operative analgesia was obtained in the similar manner as noted above for the group 1 patients, by epidural injection of selected drug.

Response of the epidurally injected drug was judged according to the basis of obtained level of analgesia. The analgesia was assessed on subjective basis and its level was divided into three degrees, namely, excellent, fair and poor, depending upon the perception of pain by the patient. Those patients were put in the 'excellent'
response category, in whom no pain was perceived post-operatively. If patient felt very little or no pain relief, he was placed in the 'poor' response category. In between, came the 'fair' response category where the patient was able to tolerate the existing pain.

In the control group above mentioned drugs were introduced intramuscularly in the same dosage to compare the effects.

The epidural canula was removed, after 12 hours in case of fentanyl, and after 72 hours in cases of morphine, pethidine and fortwin, post-operatively. The posture adopted for removal of canula was similar to that during inserting - the same. The canula was checked for breakage. The site was sealed with cotton, soaked in tincture benzoin.