**CASE REPORTS**

**SPINAL ANAESTHESIA FOR SURGERY UPPER PART OF ABDOMEN CAVITY – CASE REPORT**

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Surgery procedures in the upper part of the abdomen cavity are performed routinely in general anaesthesia. High risk group patients, namely those with circulatory insufficiency, respiratory failure and with metabolic disorders pose a problem. In this group surgical treatment is applied for life indications and in emergency cases. Regional anaesthesia as an alternative for general anaesthesia makes planned surgical treatment possible for this group of patients.

The study presents the case of a 63-year-old female afflicted with chronic obstructive pulmonary disease, ischaemic heart disease, cor pulmonale and arterial hypertension who underwent operation under spinal anaesthesia as planned.

**Key words:** regional anaesthesia, spinal anaesthesia, laparotomy, cholecystectomy

Surgery of the upper part of the abdominal cavity is usually done under general anaesthesia. There are only few publications concerning spinal anaesthesia in such cases. Usually it is administrated in urgent cases were general anaesthesia bears a severe risk of complications (i.e. pregnancy, severe respiratory insufficiency).

**CASE REPORT**

The patient Z. P-K, case history 5506/07, (female aged 63, 170 cm, 66 kg) with pulmonary insufficiency and chronic obstructive pulmonary disease (treated for 20 years and qualified for house oxygen therapy), ischaemic heart disease, cor pulmonale and arterial hypertension, after partial strumectomy in 1998.

She was admitted to the surgical ward with an atypical pain in the abdomen cavity and undiagnosed disorders of the digestive tract passage.

USG of the abdomen cavity, panendoscopy, coloscopy and digestive tract passage examination were carried out in the ward. The examination confirmed cholecystolithiasis and excluded functional and organic cause of the patient’s complaints. The applied non-surgical treatment was not successful and due to the continuing abdominal complaints the patient was qualified for surgery.

Preoperative chest and lumbar spine X-ray showed the inspiratory position of the diaphragm, right-sided lumbar scoliosis and osteophytes. In ECG sinus rhythm 84/min, P pulmonale and an incomplete right bundle branch block was observed. During preoperative oxygen therapy the gasometric parameters were as follows (tab. 1).
After anaesthesiological consultation the patient was qualified for spinal anaesthesia. This form of a central blockade was chosen for it ensures better muscle relaxation and, as a result, better conditions in the operative area than epidural anaesthesia.

Oral premedication consisted of midazolam 7.5 mg. Following the arrival in the anaesthetic room i.v. access was established. The patient received 500 ml of Ringer’s lactate solution and 10 mg of metoclopramide.

After local infiltration of the skin with 1% lidocaine, with the patient sitting, 20G introducer needle was inserted at the L3-L4 interspace through with a 27G pencil point needle (Yale®, Becton Dickinson). Placement was identified by free flow of cerebro-spinal fluid and 5 ml solution was injected over 10 s. Five percent hyperbaric bupivacaine (20 mg) with the addition of 50 µg fentanyl were injected intrathecally. Then the patient was placed in the supine position, remaining in the Trendelenburg position for 3 min. Surgery was commenced when the level of anaesthesia reached T7. The patient was monitored continuously during the operation (ECG, HR, BP, RR, SpO2 ). All data were recorded at 5 minute intervals. The patient received oxygen 5l/min through a face mask and iv titrated propofol (20 mg) for sedation. Mean SpO2 during perioperative period was 96.4±2.5%. Figure 2 shows basic life parameters (non-invasive blood pressure, heart rate) for the following time points:

The surgery lasted 85 min with minimal blood loss, at the end of the operation vomiting occurred.

The exploratory laparotomy with the division of adhesions within jejunum and cholecystectomy was performed. Postoperative course without complications. The patient was discharged from hospital six days after the operation.

**DISCUSSION**

The case shows that high spinal anaesthesia offers good conditions for laparotomy in the upper part of the abdomen cavity in patients with the failure of circulatory and respiratory system.

This type blockade is associated with not only less postoperative mortality but also fewer complications, such as deep venous thrombosis, pulmonary embolism, respiratory depression, renal failure and myocardial infarction compared to general anaesthesia (1).

Some authors claim that spinal anaesthesia reduces postoperative incidents of central dysfunction, bronchopneumonia, especially in geriatric patients (2).

Works available do not present much information on spinal anaesthesia in cases like the one analyzed.

Tran et al. described the case of a 31-year-old male suffering from type II sialidosis, with recurrent aspiration pneumonia, who was qualified for surgical conversion of the gastrostomy to jejunostomy. A spinal puncture was performed at the L2-L3 and 15 mg of hyperbaric 0.75% bupivacaine were injected. A complete motor and bilateral sensory block was on the T4 level. No vasopressor was required (3).

Hamad et al. showed 10 laparoscopic cholecystectomies under spinal anaesthesia. The puncture was done in L2-L4 or L3-L4 intervertebral space. 5% hyperbaric bupivacaine with 10 µg fentanyl was injected intrathecally. The sur-

**Table 1**

<table>
<thead>
<tr>
<th>BE (B) mmol/l</th>
<th>BE(efc) mmol/l</th>
<th>HCO₃-act mmol/l</th>
<th>HCO₃-st mmol/l</th>
<th>O₂ SAT %</th>
<th>ctCO₂ mmol/l</th>
<th>pCO₂ mm Hg</th>
<th>pH rzk</th>
<th>PO₂ mm Hg</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.2</td>
<td>6.3</td>
<td>30.8</td>
<td>29.1</td>
<td>92.4</td>
<td>52.2</td>
<td>58.4</td>
<td>7.42</td>
<td>84.5</td>
</tr>
</tbody>
</table>

**Table 2**

<table>
<thead>
<tr>
<th>Time point</th>
<th>Blood pressure (systolic/diastolic) (mm Hg)</th>
<th>Heart rate (n/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 0 - initial, before analgesia</td>
<td>140/80</td>
<td>80</td>
</tr>
<tr>
<td>10° 10' after giving local anesthetic</td>
<td>125/80</td>
<td>90</td>
</tr>
<tr>
<td>10° after starting surgery</td>
<td>100/80</td>
<td>100</td>
</tr>
<tr>
<td>10° after ending surgery</td>
<td>120/80</td>
<td>80</td>
</tr>
</tbody>
</table>
Surgery was commenced when the level of anaesthesia reached T8 (4). Tzovras et al. described 15 patients who underwent laparoscopic cholecystectomy under spinal anaesthesia. Spinal puncture was done in L₂-L₃ level. These patients received intrathecially 3 ml 0,5% hyperbaric bupivacaine, 0.25 mg of morphine and 20 µg of fentanyl. Authors of the study do not inform what the level of anaesthesia was when the operation started (5).

Savas et al. described 8 patient under general surgery cases performed using RA alone (T₄-T₆ sensory level) in patients with SPI 5 of the 8 were American Society of Anesthesiology (ASA) class 4. Operations included segmental colectomy (n = 2), open cholecystectomy (n = 1), incisional herniorrhaphy (n = 1), and laparoscopic herniorrhaphy (n = 4). They think that intraoperative conditions were adequate with RA alone for successful completion of the procedure in all cases in this study (6).

The significant fact is that the cost of spinal anaesthesia (medical equipment and anaesthetic drugs) is 58 PLN and the average cost of general anaesthesia for a similar operation is 268 PLN.

CONCLUSIONS

The case analyzed, as well as the available works show that:

1. high spinal anaesthesia in a surgery of the upper part of the abdominal cavity gives better results than general anaesthesia in high risk patients, the ones with serious cardiac and pulmonary disorders.
2. this kind of regional blockade reduces costs of treatment (in the present study up to five times).

REFERENCES