Introduction

Combined spinal epidural analgesia (CSE) during labour is associated with hypotension despite crystalloid pre-loading (1). During Caesarean section, prophylactic colloid infusion have been demonstrated to reduce the incidence of spinal induced hypotension (2). The purpose of the present trial is to investigate whether the incidence of hypotension is decreased when a colloid is administered prior to CSE analgesia in labour.

Methods

Following ethics committee approval and written patient informed consent, 100 ASA I and II parturients in active labour with vertex presenting, singleton pregnancies were included in this double-blind, randomised trial. All patients received CSE analgesia using intrathecal 4.375 mg ropivacaine combined with 1.875 µg sufentanil resolved in 2.5 mL of saline. In the P-group, 50 patients received an IV fluid load before and during CSE, consisting of 1000 mL lactated Ringer’s solution. In the V-group, 50 patients received an IV fluid load before and during CSE, consisting of 500 mL hydroxyethylstarch solution (Voluven®). The primary outcome variable studied was the incidence of hypotension, defined as a decrease in systolic blood pressure (SBP) below 80% of baseline value or a decrease below 90 mmHg. Maternal blood pressure and heart rate were followed every minute for 10 minutes and every 2 minutes for a further 20 minutes. Demographic data, obstetric data, fetal heart rate and neonatal outcome data were recorded. Statistical analysis consisted of repeated measures ANOVA with post hoc testing whenever appropriate. Categorical data were analysed using Chi square analysis and Fisher exact test. A p < 0.05 was considered statistically significant.

Results

No differences in demographic and baseline obstetric data could be identified between the groups. No differences in pain intensity and pain relief could be observed. The incidence of hypotension was reduced in the V-group (Table 1). Neonatal outcome was good in both groups.

Discussion and conclusion

Prophylactic colloid administration does reduce the incidence and severity of hypotension following CSE analgesia during labour. We believe that intravenous hydroxyethylstarch solution may have benefit in the prevention of hypotension and fetal heart rate abnormalities following CSE analgesia in labour, especially in high risk pregnancies.

References


Table 1

<table>
<thead>
<tr>
<th>Haemodynamic data in the P- and V-groups</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>Hypotension (%)</td>
</tr>
<tr>
<td>Lowest recorded SBP (mmHg)</td>
</tr>
<tr>
<td>Lowest recorded MBP (mmHg)</td>
</tr>
<tr>
<td>Maximal decrease in SBP (%)</td>
</tr>
<tr>
<td>Duration of hypotension (min)</td>
</tr>
</tbody>
</table>

Data are presented as % of group total or as mean ± Standard Deviation. * p < 0.05 versus P-group. SBP : systolic blood pressure. DBP : diastolic blood pressure.
Introduction

Gravity induced blood flow redistribution towards the dependent ventilated lung is believed to limit arterial desaturation in lateral decubitus position (1). In this study, accepted by the local Ethical Committee we wanted to document this possible redistribution in 48 consecutive consenting patients for a variety of thoracic interventions requiring one-long ventilation (OLV) in lateral decubitus.

Methods

Following informed consent, 48 patients were premedicated with 0.5mg alprazolam. Before induction, a thoracic epidural catheter was placed and all patients were anesthetised with 4 µg/kg/min propofol and remifentanil (0.25 µg/kg/min which was reduced after induction to 0.15 µg/kg/min.). Muscle relaxation was obtained with cisatracurium (0.15 mg/kg). After insertion of the double-lumen endotracheal tube, lungs were ventilated with 50% oxygen-air mixture to obtain an ETCO2 of 35 mmHg throughout the procedure. During double lung ventilation (DLV) basic physiologic parameters were recorded, arterial and venous blood samples were taken. Then, the lung on the projected operative site was excluded from ventilation. The evolution of the oxygen saturation was recorded during a period of 10 minutes in supine position (OLV-SP). Then the patient was turned in lateral decubitus under OLV. This was followed by a 10 min interval of one lung ventilation in lateral decubitus (OLV-LD). Finally, the airway to the non-ventilated, non-dependent lung was opened to atmosphere during lateral decubitus, allowing passive ventilation for 5 minutes (OLV-Patm). Haemodynamics, aerodynamics and arterial and venous oxygen samples were recorded at the end of each interval (DLV, OLV-SP, OLV-LD, OLV Patm). Care was taken to maintain the sBP within 20% of baseline. Phenylephrine infusion was given if needed.

The Kruskal-Wallis and the Friedman-Anova test were used for statistical analyses. Data are shown as mean ± SEM in figure [1] and [2]. A value of * p < 0.05 was considered statistically significant.

Results

30 patients had lung interventions, 18 had non-lung interventions. 24 patients were positioned in the left lateral decubitus, 24 in the right lateral decubitus. Oxygen saturation dropped significantly below baseline after 4 min (fig. 1). Arterial PO2 during OLV in supine position dropped to a mean of 92 ± 30 mmHg. After positioning the patient in lateral decubitus, PaO2 non-significantly increased to a mean of 100 ± 33 mmHg. After opening of the non-dependent lung-airway to atmosphere, PaO2 increased significantly to 143 ± 34 mmHg (fig. 2).

Discussion

In contrast to literature (1, 2), we found that the PaO2 and saturation did not increase dramatically with repositioning of the patient in lateral decubitus. With this type of anesthesia propofol is known not to inhibit hypoxic pulmonary vasoconstriction (3) but data for remifentanil are difficult to interpret (4).

Conclusion

Gravity induced redistribution of blood flow cannot be counted on to increase PaO2 and saturation significantly in all patients during dependent OLV.

References

Study of the level of anesthesia compatible with no detection of Brainstem and Mid-Latitude Auditory Evoked Potentials. Comparison between a fixed versus a variable acoustic stimulus volume. Patricia COUCKE, M.D., Hugo E. M. VEREECKE, M.D., Mathieu JOSPIN, Erik WEBER JENSEN, Ph.D., Michel M. R. F. STRUYKS, M.D., Ph.D., Resident, Staff Member, and Professor in anesthesiology, department of anesthesiology University Hospital, Gent, Belgium; Research Fellow, Biomedical Engineering Research Centre, Technical University of Catalonia, Barcelona, Spain.

Introduction

Diagnosis of hearing disorders can be established by measuring Brainstem auditory evoked potentials (BAEP) and Middle-Latency Auditory Evoked Potentials (MLAEP). BAEP are often done during anesthesia (1). MLAEP are also used as a measure of cerebral hypnotic drug effect (2). Both BAEP and MLAEP disappear at high concentrations of propofol. A signal-to-noise ratio (SNR) of 1.4 is considered as "inadequate signal detection". We calculated the effect-site concentration of propofol (CePROP) that corresponds with SNR = 1.4.

Implementing a variable acoustic stimulus volume might avoid post auricular muscle contractions (startle response), and improve SNR calculation. We compared the CePROP compatible with no detection of BAEP and MLAEP with a fixed versus a variable acoustic stimulus volume for eliciting the BAEP and MLAEP.

Methods

After ethics committee approval and informed consent 37 patients received propofol 1% at 300 ml/h, resulting in a transition from “fully awake” to “deep anesthesia”. We measured BAEP and MLAEP with the A-Line® AEP monitor (Danmeter, Odense, Denmark). SNR was calculated for two latency ranges. The SNR1.1-7.8 and SNR20-76.7 are the respective SNR’s for BAEP and MLAEP, reflecting signal quality between respectively 1.1 to 7.8, and 20 to 76.7 msec after every click stimulus. In 20 patients (Group F), the volume of the acoustic stimulus was fixed at 65 dB above hearing threshold. In 17 patients (Group V) the volume controller of the A-Line® AEP monitor was used. CePROP was calculated with the Schnider model.

Results

No demographic differences were found between groups. The CePROP compatible with no detection of BAEP and MLAEP are shown in table 1. BAEP are more resistant to propofol effect than MLAEP. The CePROP between groups F and V did not differ.

Discussion

Otorhinolaryngologists should consider the intrinsic effect of propofol when using BAEP for diagnosing hearing disorders. A pharmacodynamic study of deep anesthesia level can not be done with MLAEP.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Group F</th>
<th>Group V</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SNR 1.1-7.8</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Samples</td>
<td>194</td>
<td>148</td>
</tr>
<tr>
<td>Mean CePROP (µg/ml)</td>
<td>9.65*</td>
<td>9.56*</td>
</tr>
<tr>
<td>SD</td>
<td>3.24</td>
<td>2.96</td>
</tr>
<tr>
<td><strong>SNR 20-76.7</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Samples</td>
<td>102</td>
<td>75</td>
</tr>
<tr>
<td>Mean CePROP (µg/ml)</td>
<td>8.12*</td>
<td>7.96*</td>
</tr>
<tr>
<td>SD</td>
<td>3.81</td>
<td>3.49</td>
</tr>
</tbody>
</table>

*: p < 0.001 for SNR1.1-7.8 versus SNR20-76.7; **: p < 0.01 for SNR1.1-7.8 versus SNR20-76.7 (estimated by T-test).

Conclusion

Application of a variable acoustic volume controller does not change the effects of propofol on BAEP and MLAEP. It might improve signal detection at lighter levels of anesthesia.

References

Continuous chest fluoroscopy, a practical and valuable alternative to fiberoptic bronchoscopy in assessing the correct position of a left-sided double-lumen endobronchial tube? S. DEBLONDE, M.D., L. BIESEMANS, M.D., N. SPELiers, M.D., E. VANDERMEERSCH, M.D., Ph.D. Anesth. Dept., University Hospitals, Katholieke Universiteit Leuven, Herestraat 49, B-3000 Leuven, Belgium.

Introduction

Fiberoptic bronchoscopy (FOB) still is considered to be the gold standard to check the correct position of a double-lumen endobronchial tube (DLT). This FOB is usually performed after initial “blind” positioning of the DLT. In this study we compared the results of continuous chest fluoroscopy during insertion and subsequent FOB for assessment of the position of a left sided double-lumen tube (LDLT).

Methods

After Ethical Committee approval, 54 consecutive consenting patients, scheduled for a variety of thoracic surgical interventions, were intubated with a 35/37/39 french Sher-i-Bronch DLT, according to length. Classic direct laryngoscopy was performed and the LDLT was inserted with the bronchial cuff immediately distal to the vocal cords. Then the tube was rotated 90° to the left. From that point on the tube was advanced under continuous visual control by means of chest fluoroscopy until the radio-opaque demarcation ring off the tracheal tube was situated at the level of the carina. Unilateral ventilation was verified by clamping both lumens of the DLT sequentially while looking for the absence of movement of the ipsilateral diaphragm by chest fluoroscopy. A FOB was then performed through the bronchial lumen in order to verify the exact position of the bronchial cuff with respect to the carina and the secondary carina of the left bronchus. The results of these two methods were described in both anatomical and functional terms. The position of the tube was not changed if this was functionally acceptable allowing single lung ventilation.

Results

One patient was excluded due to impossibility to intubate without the aid of FOB. In one case we were not able to perform a FOB because of abundant secretions. In stead of losing precious operating time we relied on fluoroscopy for positioning of the LDLT. Because of mediastinal shifting we were not able to judge the absence of movement of the diaphragm with fluoroscopy in one patient, but auscultation was as expected.

After FOB we advanced the tube 1.5 cm in one patient and in another patient we pulled the tube 1 cm back because we were not able to visualize the carina, although functionality was normal. Only once we had to reposition the LDLT after FOB, this because the bronchial cuff was herniating over the carina.

In 39 cases (76%) the LDLT position was both anatomically and functionally correct. In 11 (22%) cases there was an anatomical deviation, e.g. the demarcation ring on the tracheal tube was not exactly situated at the level of the carina but it was judged that this would not have any functional consequence as this was already proven by the initial fluoroscopic control.

<table>
<thead>
<tr>
<th>Distance white ring – carina</th>
<th>Distance white ring – carina</th>
<th>Distance white ring – carina</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 3 mm</td>
<td>&gt; 3 mm</td>
<td>&gt; 3 mm</td>
</tr>
<tr>
<td>Functionality ok</td>
<td>Functionality ok</td>
<td>Functionality not ok</td>
</tr>
<tr>
<td>39 patients</td>
<td>5 × 5 mm below carina</td>
<td>1 patient = bronchial cuff herniation</td>
</tr>
<tr>
<td></td>
<td>2 × 10 mm below carina</td>
<td>repositioning</td>
</tr>
<tr>
<td></td>
<td>2 × above carina</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 × pulled back 10 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 × advanced 15 mm</td>
<td></td>
</tr>
</tbody>
</table>

Discussion

By using continuous chest fluoroscopy we were able to position the LDLT while taking into account the specific anatomical features of each patient. Continuous chest fluoroscopy during insertion allows instant control of the progression of the tip of the DLT which may be particularly interesting in presence of tracheal deviation. The tip of the tube may impinge on the wall of the trachea and cause damage.

The fluoroscopic monitoring of insertion and positioning of the tube requires the use of radiological equipment brought into the operating room and the presence of a technician. Also radiation is produced. On the other hand the FOB requires some training and skill and may be time consuming. It needs special attention to sterile handling to avoid contamination of the airways. FOB does not visually allow control of lung expansion.

The FOB was done after securing the LDLT to the face of the patient with tape. This may, if not done with care, displace the tube and result in functional problems and explain why with FOB the white demarcation line was not always positioned at the carina although this was the endpoint of fluoroscopic insertion.

Conclusions

The results of this study show us that when using continuous chest fluoroscopy to position a double-lumen tube it is not necessary to perform a FOB to assess the correct position of the DLT. Therefore fluoroscopy may be a valuable alternative to FOB control of DLT position after blind insertion. FOB must always be available during surgery to use in case of dislocation of the DLT or in case of unexplained hypoxemia or ventilatory problems.

References

Introduction

Since a few years, several reports highlight the fact that anaesthetic agents could have immunomodulatory properties, impeding with different components of the immune system. One of these drugs, ketamine, is used for a long time in order to sedate critically ill patients. Since the mid seventies, several reports highlights the fact that the use of this drug is associated with a lowering of morbidity and mortality in different critical settings. The first explanation given to these observations is that ketamine is not hemodynamic depressing, lowers oxygen consumption and facilitate oxygen delivery to tissues. But new evidences came up by giving anti-inflammatory properties to ketamine which could be another part of the explanation. This work summarizes the main interactions between ketamine and the immune system.

Method

This review is based on sixty-five articles published from 1983 until 2006, all of these are pubmed citations. The next items are discussed : influence on NF1C-B and cytokine production, influence on white blood cells, the adenosine-mediated immunomodulator mechanism of ketamine, influence on the inducible NO synthase, and interactions with the hypothalamo-pituitary axis.

Result

The immune response is mainly mediated by the white blood cells. Experimental and clinical data’s show that ketamine acts as an immunomodulator by lowering the pro-inflammatory cytokine production in these cells. Other functions of the inflammatory cells are impeded : chemotaxy, diapedese and bactericidal function of neutrophiles, NO production in macrophages and monocytes, exocytose in mastocytes. There are also some evidences that ketamine inhibits platelet aggregation which is an important factor in neutrophile migration. Ketamine has also a central inflammatory action by stimulation the hypothalamo-pituitary axis and the cortisol production.

Conclusion

Ketamine has immunomodulatory properties especially when given before immunostimulation. Therefore, we support the fact that ketamine, administrated at the induction of anesthesia, can reduce the postsurgical inflammatory response and the increased morbidity associated with it. Future studies have to be done to determine in which settings it will be of benefit and what are the restrictions of it.

References


Introduction

The position of a double-lumen endobrachial tube (DLT) is critical. Even minor displacement may cause important functional problems. Originally, a DLT had a carinal hook to facilitate the maintenance of correct tube position. At present, DLT’s without a carinal hook are preferred but may carry a greater risk of dislocation.

Methods

After Ethical Committee approval, 51 consecutive consenting patients, scheduled for a variety of thoracic surgical interventions, were intubated with a 35/37/39 french Sher-i-Bronch LDLT, according to length. Position was verified with fiberoptic bronchoscopy (FOB) and the position of the white tracheal radiopaque ring with respect to the carina was secured. Then the patient was turned in the lateral decubitus position, depending on the side to be operated. Immediately after repositioning a second FOB was performed to evaluate possible displacement of the LDLT and its position with respect to the carina and the secondary bronchus of the dependent lung. Position changes are given for left and right lateral decubitus (minimum, maximum and mean) in proximal or distal direction in millimetres. Possible functional problems were recorded, as were the corrective actions. Technical difficulties in the verification of the LDLT position with a FOB through the bronchial lumen were recorded.

Results

23 patients were operated on the left side, 28 on the right side. In the left sided thoracotomies no displacement was seen in 11 patients. Distal displacement was recorded in 6 patients (min. 2 mm, max. 10 mm, mean 6.25 mm). Proximal displacement was seen in another 6 patients (min. 5 mm, max. 25 mm, mean 8.9 mm). In the right sided thoracotomies no displacement of the LDLT was seen in 12 patients. In 6 patients the LDLT moved in the distal direction (min. 5 mm, max. 12.5 mm, mean 9 mm). A proximal displacement was seen in 10 patients (min 3 mm, max. 10 mm, mean 6.2 mm).

The verification of the position of the LDLT by means of a FOB through the bronchial lumen was technically difficult in 2 patients. Abundant secretions prolonged FOB excessively in the first case. In the other patient the size of the bronchoscope was too large to easily perform the FOB through the bronchial lumen. In only 2 out of 51 patients we felt the need to reposition the LDLT. In one case the bronchial cuff was rising excessively above the carina. In the second case we had difficulties to identify the exact position of the LDLT so we preferred to reposition the tube.

<table>
<thead>
<tr>
<th>No displacement</th>
<th>Right lateral decubitus (n = 23)</th>
<th>Left lateral decubitus (n = 28)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximal displacement</td>
<td>6 (min. 5 mm, max. 25 mm, mean 8.9 mm)</td>
<td>10 (min. 3 mm, max. 20 mm, mean 10 mm)</td>
</tr>
<tr>
<td>Distal displacement</td>
<td>6 (min. 2 mm, max. 10 mm, mean 6.25 mm)</td>
<td>6 (min. 5 mm, max. 12.5 mm, mean 9 mm)</td>
</tr>
</tbody>
</table>

Discussion

It is commonly accepted that changing the patient’s position may cause displacement of DLT. There is however little information available in the literature. The dislocation of the DLT may be due to the turning of the patient itself, a different degree of flexion of the head and neck in dorsal versus lateral decubitus or to a mediastinal downward shift due to gravity in lateral decubitus. By performing FOB in both positions we recorded displacement of the DLT, though this displacement did not seem to have an effect on the functionality of the DLT in the majority of cases.

Conclusion

Controlling the position of the LDLT with FOB after turning the patient in lateral decubitus may reveal unexpected displacement.

References

**Lidocaine subcutaneously in the treatment of neuropathic pain: an observational study.**

A. G. STEGEMAN, A. KUMAR, B. MORLION.

**Introduction**

Neuropathic pain represents an enormous burden for patients and a challenge for the medical community because of its severity, chronicity and resistance to simple analgesics. Two systematic reviews (1, 2) demonstrated the efficacy and safety of local anaesthetics when used to treat neuropathic pain. A Cochrane review (2) suggested the need for evaluation of a subcutaneous delivery system. The authors suggested that patients’ satisfaction is clinically more meaningful than the observed statistical significant pain relief alone.

**Objective**

To assess the effectiveness of subcutaneous lidocaine (SL) infusions in reducing pain intensity/interference with quality of life among patients with neuropathic pain.

**Design**

Retrospective descriptive, controlled pilot study.

**Methods**

Eleven patients, diagnosed with neuropathic pain of mixed aetiologies were included. Requested inclusion criteria were: a score of 4 or more on the neuropathic pain scale DN-4 and pain relief superior to 50% during or after intravenous lidocaine (5 mg/kg) over 60 minutes without side effects. One of 2 different continuous SL dose regimens were administered during 3 weeks, a low dose regime (50 mg/h) and a high dose regime (100 mg/h).

All patients were assessed at baseline, at the end of 3 weeks SL and 4 weeks after completion of treatment. Pain intensity was assessed by means of the Visual Analogue Scale (VAS). The intensity of allodynia was recorded with the dynamic allodynia brush test (BT): (brushing 5 times 2 cm long with 2 seconds intervals over the affected skin area, giving 5 NRS scores on a 11 point Likert scale (data not shown). Quality of life was evaluated by the use of the Pain Disability Index (PDI). Side effects were recorded during the weekly visits. Statistical analysis was performed using T-test and ANOVA.

**Results**

Nine patients completed the study, two withdrew for personal reasons. Three patients had painful infusion sites and 1/11 required antibiotic treatment. Data shown are number of patients, mean and Std. Deviation. Due to heterogeneity of the data one cannot compare both groups.

<table>
<thead>
<tr>
<th></th>
<th>baseline</th>
<th>3 weeks SL</th>
<th>4 weeks after SL</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS 0-100 (N = 9)</td>
<td>63,1 (18,44)</td>
<td>47,1 (21,71)</td>
<td>57,6 (29,09)</td>
</tr>
<tr>
<td>VAS 50 mg/h (N = 5)</td>
<td>54,6 (16,15)</td>
<td>51,2 (13,63)</td>
<td>60,80 (19,20)</td>
</tr>
<tr>
<td>VAS 100 mg/h (N = 4)</td>
<td>74,0 (16,75)</td>
<td>42,0 (30,77)</td>
<td>53,5 (31,89)</td>
</tr>
<tr>
<td>PDI 0-70 (N = 9)</td>
<td>38,7 (8,87)</td>
<td>29,1 (12,04)</td>
<td>38,0 (6,34)</td>
</tr>
<tr>
<td>PDI 50 mg/h (N = 5)</td>
<td>36,0 (11,34)</td>
<td>27,0 (15,65)</td>
<td>38,0 (5,10)</td>
</tr>
<tr>
<td>PDI 100 mg/h (N = 4)</td>
<td>42,0 (3,46)</td>
<td>31,75 (6,55)</td>
<td>38,0 (8,52)</td>
</tr>
</tbody>
</table>

**Discussion**

No statistical differences in the variables assessed were found in either group. However sample size was very small and a large difference in pain variation was observed. The prolonged relief of lidocaine shown in other studies (1, 3), probably through the silencing of ectopic discharges (3), could not be demonstrated in this study. Some large review studies (1, 2) suggested the need for a subcutaneous delivery system because the number needed to treat (NNT) of the oral analogue mexiteline hydrochloride is between 10 and 38 (2). Only 4 patients reported clinical meaningful pain relief during SL but 3 of these returned to baseline values after 4 weeks. The only side effect was local skin irritation that was very pronounced in most subjects, and was experienced as very annoying to unbearable despite a pH of 6.9. There were no adverse reactions or signs of systemic toxicity.

**Conclusion**

No prolonged pain relief after SL was observed in this pilot study. Local side effects & the inconvenience of carrying a pump system 24 hours a day, was not appreciated by 4 patients. Finding a practical continuous administration method could promise good results in some patients as was shown by the effect in 4 patients during the first three weeks of treatment. These patients had almost no pain but there were some non responders who also had more complex pain patterns apart from the neuropatic pain component. Subcutaneous lidocaine could be an useful therapeutic option for individually selected patients but the modalities of administration need to be refined.

**References**


2. Challapalli V., Tremont-Lukats I. W., McNicol E. D., Lau J., Carr D. B., Systemic administration of local anesthetic agents to relieve neuropathic pain, Cochrane Database of Systematic Reviews 2005 Issue 4 art. No.:CD003345. DOI:10.1002/14651858.CD003345.pub2


Introduction

Combined spinal epidural analgesia (CSE) during labour is associated with hypotension despite crystalloid pre-loading (1). Prophylactic ephedrine may reduce the incidence and severity of hypotension and furthermore be beneficial because it has tocolytic properties. The purpose of the present trial is to investigate whether the incidence of hypotension is decreased when ephedrine is administered prior to CSE analgesia in labour.

Methods

Following ethics committee approval and written patient informed consent, 100 ASA I and II parturients in active labour with vertex presenting, singleton pregnancies were included in this double-blind, randomised trial. All patients received CSE analgesia using intrathecal 4.375 mg ropivacaine combined with 1.875 µg sufentanil. In the P-group, 50 patients received an IV fluid load, consisting of 1000 ml plain lactated Ringer’s solution, before and during initiation of CSE analgesia. In the E-group 10 mg of ephedrine, dissolved in 1000 ml lactated Ringer’s, was administered intravenously before and during initiation of CSE analgesia. The primary outcome variable studied was the incidence of hypotension, defined as a decrease in systolic blood pressure (SBP) below 80% of baseline value or a decrease below 90 mmHg. Maternal blood pressure and heart rate were followed every minute for 10 minutes and every 2 minutes for a further 20 minutes. Demographic data, obstetric data, fetal heart rate and neonatal outcome data were recorded. Statistical analysis consisted of repeated measures ANOVA with post hoc testing whenever appropriate. Categorical data were analysed using Chi square analysis and Fisher exact test. A p < 0.05 was considered statistically significant.

Results

No differences in demographic and baseline obstetric data could be identified between the groups, except for more patients in the P-group that had ruptured membranes. No differences in pain intensity and pain relief could be observed. The incidence of hypotension was similar between the two groups (Table 1). The lowest recorded blood pressure and the maximal decrease in systolic blood pressure was not different between the two groups. Neonatal outcome was good in both groups.

Discussion and conclusion

Prophylactic ephedrine did not reduce the incidence and severity of hypotension following CSE analgesia during labour and delivery in this trial, although there is a trend towards less hypotension in the E-group.

References