Spinal anaesthesia for elective surgery

Editor—As someone who regularly performs spinal anaesthesia in orthopaedic and obstetric patients, I read with particular interest the recent article by Luck and colleagues.1 I was disappointed that in this era of litigiousness, the authors still routinely insert a spinal needle at the second lumbar interspace. We know from previous studies that even experienced anaesthetists are actually one space above the space they think they are at.2 Thus, routinely aiming to place a spinal needle at L2–L3 risks placing the needle at L1–L2 or above thus risking injury to the conus medullaris. I think this article sends out the message that performing spinal anaesthesia at L2–L3 is routine. I now routinely recommend to trainees that spinal anaesthesia should not be performed above L3–L4, unless there are exceptional circumstances. In fact, I recommend that they choose L4–L5 as the default space for performing a spinal block as technically they are no more difficult to perform and block height is not affected by giving the spinal solution at L4–L5. It will be interesting to see the results of the National Audit on Regional Anaesthesia in January of 2009 which will give us an indication of what the national practice is regarding spaces at which spinal blocks are performed and their relative risks.

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Editor—With respect, our paper does not state ‘that performing spinal anaesthesia at L2–L3 is routine’.1 It says that in a tightly controlled study of hyperbaric solutions of three different drugs, the solution was injected at either ‘the second or third lumbar interspace’, and also says that there were ‘no major sequelae’. This study was the latest in a series which goes back many years and has used exactly the same protocol (including close patient follow-up) in several hundred patients, all without sequelae. Raising issues of ‘litigiousness’ suggests negligent practice and we take some exception to that. It is our routine clinical practice to use the third lumbar interspace, with the second being used as the default, and this is what happened in the study, with the iliac crests (or the vertebra prominens in cases of difficulty) being used as the key landmark in a fully flexed (a key point we believe) patient.

We are very aware of the issue of vertebral level, two of us having written an editorial for this Journal reviewing the many factors involved.3 Briefly, we consider that it is impossible to guarantee that the needle is inserted below the spinal cord because of its variable termination4 and the difficulty of identification of spinal level.2 In addition, even when the needle is inserted below the cord, it is still directed at the cauda equina. Thus, the needle must be inserted gently and carefully if injury is to be avoided. With the exercise of appropriate care, spinal anaesthesia can be performed at mid-thoracic level without damaging the spinal cord.5

We have some concern over the advocacy of the fourth lumbar interspace, and do not accept that the level of injection does not affect the eventual level of block.6 Hyperbaric solutions, particularly, may become ‘trapped’ on the caudal side of the lumbar curve if they are injected at too low a level, the result being a very restricted block which is probably inadequate for surgery, and even plain solutions may be more restricted in spread than is usual. Further, it is our experience that the frequency of failed lumbar puncture is much greater if too low a level is used for needle insertion. However, if Dr Sumaiya finds that this level is successful in routine practice, perhaps we have to conclude that ‘his’ L4–L5 is ‘our’ L3–L4!

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General anaesthesia for intralocal bleomycin therapy of vascular malformations: initial 3 yr experience

Editor—Intralocal bleomycin therapy is a relatively new and effective treatment for vascular malformations.1 2
Currently, this treatment option is only available in a small number of centres worldwide and only at our unit in the UK. Increasing interest suggests that in future more anaesthetists may be asked to provide anaesthesia for patients receiving intralesional bleomycin treatment.

Bleomycin chemotherapy is a recognized cause of pulmonary pathology. The risk of developing bleomycin-related pulmonary injury is known to be increased by alveolar hyperoxia even in cases where there has been an interval of 6–12 months between bleomycin exposure and hyperoxic anaesthesia. Animal studies have shown that the risk of developing bleomycin-related pulmonary pathology is increased if bleomycin is administered concurrently with the alveolar hyperoxia. This has implications for the anaesthetic management of our patients where, despite a lower dose of bleomycin required than that used in chemotherapy, the drug is administered during general anaesthesia.

In our unit, we use the following protocol. Before admission, adult patients are referred to a respiratory physician for assessment by history, examination, baseline spirometry, transfer factor (DLCO), and a chest radiograph. Children are assessed by a paediatrician with a special interest in respiratory disease; baseline respiratory function tests being obtained where possible. Patients are reviewed by the respiratory team midway through a course of treatments and after completion of treatment.

The aim is to provide safe anaesthesia while avoiding alveolar hyperoxia. Pre-oxygenation is avoided and supplemental oxygen is restricted, aiming for a normal end-tidal oxygen concentration and a target minimum SaO2 of 94%. Ventilation is assisted to prevent hypoxaemia resulting from alveolar hypoventilation. Most cases can be managed with a laryngeal mask airway or oropharyngeal airway, thus avoiding any desaturation associated with extubation. The procedure is performed in the anaesthetic room to avoid hypoxic events upon transfer into theatre. If difficulties arise, the anaesthetist is encouraged to use oxygen supplementation as necessary until problems are resolved. Before transfer to recovery, the patient should have resumed satisfactory spontaneous respiration on air. During recovery, no supplemental oxygen is prescribed unless the oxygen saturation decreases below 94% and, if required, the lowest effective supplementation is used.

We have reviewed our first 3 yr experience of providing general anaesthesia for these patients. Forty-nine patients received a total of 187 general anaesthetics. Nineteen (42.9%) of the patients were children, with seven (14.3%) under 1 yr old. The majority (65.3%) of procedures (42.9%) of the patients were children, with seven (14.3%) received a total of 187 general anaesthetics. Nineteen general anaesthesia for these patients. Forty-nine patients required, the lowest effective supplementation is used. unless the oxygen saturation decreases below 94% and, if during recovery, no supplemental oxygen is prescribed during recovery. No supplemental oxygen is prescribed unless the oxygen saturation decreases below 94% and, if required, the lowest effective supplementation is used.

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We have reviewed our first 3 yr experience of providing general anaesthesia for these patients. Forty-nine patients received a total of 187 general anaesthetics. Nineteen (42.9%) of the patients were children, with seven (14.3%) under 1 yr old. The majority (65.3%) of procedures involved lesions on the face; a further 12.2% involved the head and neck. The median FIO2 during treatment was 0.21. About 66.5% of patients had an FIO2 of 0.25 or less, 86.9% had an FIO2 of 0.3 or less, and 91.7% of patients had an FIO2 of 0.35 or below (Table 1). There were only two (1.1%) procedures where oxygen saturation levels below 90% were recorded. Thirty-three (17.6%) procedures required the patient to receive oxygen in recovery. There were no cases of bleomycin-related pulmonary disease. Two patients reported bleomycin-related skin reactions.

With careful respiratory assessment and monitoring, and using an anaesthetic technique that attempts to avoid alveolar hyperoxia, intralesional bleomycin therapy of vascular malformations under general anaesthesia has not been associated with the development of pulmonary complications in patients treated at our unit.

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Table 1 FIO2, administered during procedure (n = 167)

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<th>FIO2</th>
<th>n</th>
<th>%</th>
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<td>66.5</td>
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<td>0.26–0.30</td>
<td>34</td>
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<tr>
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<tr>
<td>0.41–0.45</td>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>0.46–0.50</td>
<td>8</td>
<td>4.8</td>
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<tr>
<td>&gt;0.51</td>
<td>1</td>
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Target controlled infusion of opioids for bariatric surgery and morphine loading dose

Editor—I read with interest the useful study by De Baerendaeger and colleagues, but wish to raise some concerns about the paper. First, the authors did not declare