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Detection and management of epidural haematomas related to anaesthesia in the UK: a national survey of current practice†

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Background. Epidural haematoma is a rare, but potentially disastrous complication of epidural analgesia. Favourable neurological outcome depends upon early recognition and surgical decompression; therefore, the management of epidural analgesia should include a systematic approach to recognition of the signs of epidural haematoma.

Methods. We conducted a national postal survey of the policies and protocols used by acute pain services for investigating clinical signs suggestive of epidural haematoma, and the availability of urgent MRI scans. This was a repeat of a survey that was carried out in 2001, but not published.

Results. The response rate was 84%. Of the acute pain services that responded, 99% have a written protocol for running epidural infusions, 91% include regular assessment of sensory and motor function, and 55% have a written protocol for the investigation of abnormal motor block. On-site 24 h access to MRI scanning facilities was available to 57%, 33% have arrangements with another hospital, and 10% do not have 24 h access to MRI. Thirty per cent of respondents knew of an epidural haematoma related to epidural analgesia in their hospital, one-third of which were not diagnosed and treated within 24 h.

Conclusions. Improvements in monitoring have occurred over the last 5 yr, but observations of neurological function are not routine in all units, and are not continued after removal of the epidural catheter in the majority. The authors suggest that acute pain services should be responsible for protocols for the investigation and treatment of epidural haematomas.

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Epidural infusions are used routinely for analgesia after operation and during labour. The recently published national census of central neuraxial block in the UK, which reported the snapshot phase of the Third National Audit Project of the Royal College of Anaesthetists,[1] found that a total of 3839 epidurals, excluding caudals, and 657 combined spinal and epidurals were performed for postoperative analgesia in adults and children over a 2 week period. Applying the multiplier of 25 used by the census, the authors suggest that approximately 112 400 epidurals may be performed annually for postoperative analgesia in the UK. The survey does not distinguish between epidural catheter insertion and 'single-shot' epidurals, so the rate of catheter insertion may be lower, but it is reasonable to assume that the majority of these procedures involve insertion of an epidural catheter. This correlates with our estimate obtained by extrapolating from our acute pain service audit data. Approximately 900 epidural catheters are sited annually for postoperative analgesia in Portsmouth, which serves a population of approximately 580 000—roughly 1% of the national population, so assuming other institutions have a similar epidural rate to our own, the number

†This article is accompanied by Editorial I.

of epidural catheters sited annually for postoperative analgesia in the UK would be of the order of 90 000.

The quoted incidence of epidural haematomas is around 1:190 000,[2] but this is likely to be an underestimate as it is based on cases reported in the literature. This would suggest a likely incidence of one epidural haematoma every 2 yr related to epidurals used for postoperative analgesia in the UK. Although rare, the consequences of an epidural haematoma can be devastating, especially if not detected and treated rapidly.

Seven years ago, an epidural haematoma occurred in our hospital. Both detection and treatment were delayed. In response to this, we revised the protocol for investigation of abnormal motor block and, as MRI was not routinely available outside normal working hours in our hospital, made arrangements with the regional neurosurgery unit for MRI to be performed when indicated by our acute pain service protocol. We subsequently undertook, but did not publish, a national postal survey to assess how and where patients with epidural infusions were monitored in other hospitals, and what arrangements were in place for the investigation and management of epidural haematomas.

The results of this survey showed that regular checks of sensory and motor function did not occur in all hospitals and that fewer than one-third of acute pain services continued checks after the epidural had been removed. Only 43% had access to MRI scanning in their hospital. Many of those without direct MRI access used MRI scanners in non-neurosurgical units, increasing treatment delay if the results were positive. Thus, 6 yr later, we have repeated the survey to elicit current practice and to determine whether practice in this area had changed.

Methods

We obtained a list of all anaesthetic departments in the UK from the Royal College of Anaesthetists and obtaining the addresses of the 301 departments registered as having College Tutors. We sent a numbered questionnaire (Appendix 1) to each of these departments, addressed to a member of the acute pain service. A covering letter explained that data collected would be made anonymous and be non-attributable. After 12 weeks, we re-sent the questionnaire to non-responders. The results were collated and compared with those from 2001.

Results

Three hundred and one questionnaires were sent out, and 254 replies were returned—a response rate of 84%. Ten hospitals which had no acute pain team returned uncompleted questionnaires. All but two hospitals ran postoperative epidurals. Thus, completed replies were received from 242 hospitals where postoperative epidural infusions were in use, and this figure is used as the denominator for calculating percentages, which are rounded to the nearest integer.

Table 1 Acute pain service protocols

	2001		2007	
	Yes	No	Yes	No
Do you have a written protocol for running postoperative epidural infusions?	236	12	239	3
Does this include regular assessment of sensory level and motor function?	197	39	222	20
Are observations made at least 4 hourly?	177	20	189	27
Do observations continue after the epidural is removed?	73	124	107	115
Do they continue for more than 12 h?	16	57	30	77

Epidural infusions are managed on normal wards in 222 units (92%), and the remaining 20 units (8%) run them only on a high dependency facility. These results show a change in practice from 2001 when only 80% of units managed epidurals on surgical wards. Written protocols for running postoperative epidural infusions were in place in 239 units (99%), compared with 95% in 2001 (Table 1).

Epidural observations

Two hundred and twenty units (91%) make regular assessment of sensory level and motor function (84% in 2001), with the remaining 20 not making assessments (Table 1). In 189 units (78%), these observations are made at least 4 hourly (six respondents did not answer this question). One hundred and seven units (44%) continue to monitor sensory and motor function after epidural catheters are removed (29% in 2001), and 30 units (12%) monitor for more than 12 h after removal.

In 2001, only 31 units (13%) had a written protocol for the investigation of a suspected epidural haematoma. In 2007, we asked more specifically about the existence of a protocol for the investigation of abnormal motor block, and 129 (53%) confirmed such a protocol was in place. When an epidural haematoma is suspected, a consultant anaesthetist is solely (49%) or jointly (34%) responsible for instigating investigation in 202 units, leaving 40 units (17%) in which responsibility is not taken by a consultant anaesthetist.

Access to MRI scans

Six years ago, 43% of units had 24 h access to an MRI scanner, compared with 136 (57%) now, but 100 do not, and six did not answer this question (Table 2). Of the 100 units which do not have in-house access to a scanner, 81 have access to an MRI in another hospital and 19 do not have 24 h access. One hundred and twenty-six units (52%) have a specific agreement with their radiologists to allow 24 h access to MRI scanning for suspected haematomas