

NHS and private patients to start this month. The Government's political efforts to introduce a common waiting list have always seemed disproportionate to any practical advantage for NHS patients. Consultants have generally admitted acutely and seriously ill patients according to medical priority, regardless of their origins, and the extent of so-called queue jumping by non-urgent private patients is exaggerated by politicians. Indeed, such patients have often been more interested in fixing a definite admission date some months ahead than in demanding an early bed.

But the political deed has been done and so far as consultants are concerned the important part of this agreement between the Joint Consultants Committee and the Secretary of State is that waiting lists remain the individual consultants' responsibility. The consultants' leaders have done well to stick to their guns on that principle. Discussions are to continue, with local investigation and consultation, on extending the common waiting list to patients with non-urgent conditions. Consultants should make sure that their views are made known locally so that their representatives have full support in the discussions with health authorities.

The importance of consultants making their voice heard locally is also emphasised by Mr D E Bolt, chairman of the Central Committee for Hospital Medical Services' Negotiating Subcommittee, in a letter to consultants about the pro-

gramme for withdrawing private beds. Referring to serious disquiet in the profession about the way the Health Services Board is conducting the withdrawal exercise, he reminds consultants of the importance of challenging the Health Services Board's proposals for withdrawing beds where satisfactory non-NHS private beds are not available. Mr Bolt warns that: "A stage has now been reached at which the beds under attack are not, in any way, surplus to the requirements of private practice, but are essential—particularly for the conduct of serious cases requiring the full range of hospital facilities. The failure of Government to fulfil its side of the Goodman agreement by implementing Section 59 of the Act,<sup>1</sup> which would ensure access to hospital facilities for private patients needing specialised facilities, is making a bad situation worse. However, successful defence of these vital remaining beds demands local knowledge, and that can be provided only by the consultants on the spot. It is our view that, when the board comes to consider the evidence which you have submitted, it will be quite impossible for it to reach a fair conclusion without direct discussion with informed consultants from the districts concerned."

<sup>1</sup> *Health Services Act 1976*. London, HMSO, 1976.

<sup>2</sup> *British Medical Journal*, 1976, **1**, 1170.

<sup>3</sup> *British Medical Journal*, 1979, **1**, 68.

## Regular Review

### Continuous lumbar epidural analgesia for labour and delivery

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Although pain relief in labour by continuous lumbar epidural block was documented sporadically in the 1930s<sup>1,2</sup> and mid-1950s,<sup>3,4</sup> its application in North America was overshadowed by the preferences for caudal extradural block and spinal analgesia. In Britain and Australia the technique was energetically employed by a handful of enthusiast anaesthetists during the 1950s—among whom the names of Massey Dawkins, Wyman, Steel, Doughty, Bromage, and McCaul are to be honoured—and indeed the now classic monograph<sup>5</sup> on the technique appeared at that time; but regional block for obstetrics, as for other purposes, was virtually an unexplored terrain in Britain. The advent of commercially available disposable equipment—epidural cannulas, bacterial filters, and the like—and a long-acting local anaesthetic of low toxicity, bupivacaine (Marcain), prepared the way for an awakening of interest. In 1968 the Fourth World Congress of Anaesthesiologists was held in London, and its president, Dr (now Sir) Geoffrey Organe, prompted the BBC to mention epidurals in its commentary about the congress. This triggered public interest. The Obstetric Anaesthetists' Association, founded at this time, then played the major part in disseminating enthusiasm for the technique. Interest burgeoned in North America shortly afterwards.

The object of lumbar epidural analgesia is to block the roots of the sensory nerves supplying the uterus (T11 and 12 with contributions from T10 and L1) and the lower birth canal (S2,3,4) by introducing local anaesthetic via a cannula into the extradural space. The extent to which this is achieved is impressive. According to our own data, which match well those of other centres,<sup>6-9</sup> about 85% of patients so treated have been rendered free of pain and 12% have received partial relief; and there is a 3% incidence of total failure. Increasingly, the bulk of failures in our service occur when we attempt the epidural block too late in labour.

By closely questioning each of our patients we gather that 1.5%, though fully satisfied with the analgesia, have a sense of deprivation because they did not contribute sufficiently to their labour and delivery. We respect this as a sincerely held opinion. Nevertheless, very few women decline the offer of another epidural when they return in a subsequent pregnancy. A review of our first 10 000 epidurals (our current total is nearly 15 000) showed that of the 1900 who returned to our hospital for another delivery only 0.4% positively refused to have another epidural. The criticism that an epidural "demeans the dignity" of the woman in labour is characteristic of the intelligent middle-class organisations, yet

in our hospital the incidence of epidurals is highest among social class I patients and falls progressively to social class V, (no fee or gratuity is involved in the service).

Complications in the mother are few in a well-ordered unit. A rather daunting list was given by Usubiaga;<sup>10</sup> but, in common with others reported from Britain and elsewhere, these are seen on close scrutiny to result from poor supervision or inadequate attention to well-publicised protocols rather than to unavoidable complications of the technique. In our NHS clinical service we have had only two serious complications in nearly 15 000 epidurals; both occurred some years ago<sup>11 12</sup> and are unlikely to recur. Neither headache, backache, nor bladder dysfunction is a specific result of an epidural<sup>13 14</sup>; but, because postpartum bladder dysfunction is a likely sequel of instrumental vaginal delivery, and as such a delivery occurs much more often among patients who have had an epidural, the two are related. The outstandingly common complaint is of loss of bladder sensation—though not of difficulty with micturition—but this does not call for catheterisation and persists usually for only two to three days after delivery.

Inadvertent dural puncture can cause considerable distress. Its incidence in a well-organised obstetric unit is likely to lie between 1% and 2%, but an epidural drip after delivery or an epidural blood patch almost eliminates discomfort due to a dural tap.

The possibility that hypotension will occur during labour as a result of the autonomic blockade has been considerably over emphasised by ill-informed commentators. Hypotension most frequently results from compression of the vena cava and thus from inappropriate positioning of the patient in labour. If we avoid this error, an appreciable fall of blood pressure will result from roughly 5% of epidural top-ups. It will be rapidly reversed by intravenous infusion of Hartmann's solution—indeed, there is a growing consensus that preloading a mother's circulation with one litre of Hartmann's solution will greatly reduce the incidence of hypotensive episodes associated with an epidural block.

We can also reduce blood pressure, or prevent an increase, in women with pre-eclampsia by giving an epidural. Our own practice is to provide an epidural just as for analgesia. This will stabilise the blood pressure (which is highly labile in pre-eclampsia), and if further reduction is necessary we administer a specific antihypertensive agent by intravenous pump infusion. This regimen, however, does not obviate the need for anticonvulsant therapy.

An epidural block prolongs the first stage of labour only slightly,<sup>6 15</sup> by about an hour on average, and indeed in some cases by relieving pain and allowing the mother to recover from her exhaustion it increases flagging uterine activity. An epidural, however, undoubtedly prolongs the second stage, both because it diminishes reflex bearing down in a large percentage of cases and because it reduces the power of the lower abdominal and pelvic muscles. We can avoid these effects by limiting the dose of local anaesthetic towards the end of labour, but this policy leads to a higher incidence of pain during the second stage at delivery and, like others, we are not prepared to countenance it. The result is the well-known high incidence of instrumental deliveries associated with epidurals. If, however, there is no obstetric requirement for a mid-forceps delivery, an epidural block need not be associated with anything other than a low forceps (with gentle rotation if needed) or an outlet forceps delivery. A traumatic delivery in the absence of mechanical obstruction or severe fetal distress is the outcome of an overenthusiastic

obstetrician's desire to bring labour to a close, and in no circumstances should it be stigmatised as a complication of the epidural. The profound relaxation of the pelvic floor that an epidural may induce actually reduces the degree of trauma (to both mother and infant) associated with a difficult vaginal delivery; but it does unfortunately also encourage some obstetricians to attempt such a delivery in cases where caesarean section would have been the better choice.

The outstanding benefit of abolishing the bearing-down reflex and of pelvic floor relaxation is in cases of breech presentation,<sup>16-19</sup> multiple pregnancy,<sup>20-23</sup> and prematurity.<sup>24-25</sup> A gentle, controlled, and pain-free delivery is the predominant requirement for avoiding damage to the infant in these circumstances, and an epidural is thus strongly indicated.

There are other ways in which an epidural benefits the infant. In contrast to drugs such as pethidine and diazepam,<sup>26-28</sup> bupivacaine very rarely causes loss of beat-to-beat variability of the fetal heart-rate. More important, however, than the direct drug effects, or lack of them, is the influence of an epidural on the acid-base balance of the fetus. Metabolic acidosis in the mother is a well-recognised characteristic of labour, and the less effective the pain relief the more severe the acidosis is likely to be.<sup>29-31</sup> Thus progressively increasing fetal acidosis occurs.<sup>29</sup> An effective epidural prevents these changes, and, though this benefit is unlikely to be of great moment in normal cases, it may considerably aid the wellbeing of a fetus compromised by placental dysfunction even before the start of labour.

In cases in which there is no obstetric pathology, an epidural makes little discernible difference to the condition of the babies immediately after birth if they are compared with a group of similar infants after competently conducted "non-epidural" deliveries. Subsequent neurobehavioural tests,<sup>32</sup> very fine discriminators of neonatal alertness, have shown, however, that the condition of infants of mothers who received an epidural (with bupivacaine) for labour is superior to that of infants whose "matched" mothers received as little as 50 mg pethidine throughout labour.<sup>32 33</sup> In cases of obstetric pathology an epidural, far from being detrimental, is often of outstanding benefit to the infant. The only undesirable association is with an increased incidence of neonatal hyperbilirubinaemia,<sup>34</sup> though the suspicion that there is a direct relation remains to be validated.

A high incidence of birth trauma is often said to be an inevitable consequence of an intensive epidural service. This is true only as a result of obstetric mismanagement. Analysis of our own hospital data<sup>25</sup> showed that among the 10 000 epidural cases no perinatal death was attributed by the pathologist to trauma, yet among the 10 000 non-epidural cases in the same period in this hospital there were 14 perinatal deaths due to trauma (12 to intracranial haemorrhage and two to intra-abdominal haemorrhages).

A well-organised delivery suite is generally acknowledged, except by those having a vested interest in ignoring the fact, to be the obstetric equivalent of an intensive care unit, catering for far more patients—who, incidentally, show far more frequent and abrupt changes in condition—than medical or surgical intensive care units. The demands on the staff are therefore high, both qualitatively and quantitatively. An epidural service within such a structure thus cannot be a fringe benefit available on occasional request. It demands the integrated understanding and experience of obstetricians, midwives, and anaesthetists. In some units the obstetricians play the major part in providing epidurals,<sup>35</sup> and these dedicated and hard-working obstetricians are to be applauded.

In the unlikely event of their encountering serious difficulties they can rely on the support of their anaesthetic colleagues. In most obstetric units, however, a tripartite collaboration is the rule. Within defined limits midwives in England and Wales are permitted to administer top-up doses of the local anaesthetic; and this has provided an interesting and attractive facet of their evolving role in the "new obstetrics." It is to be hoped that the midwives in Scotland will soon be permitted to share in this advance.

The demands made on the obstetricians and anaesthetists, however, are at least as great. A well-staffed and experienced epidural service cannot be grafted on to a poorly equipped and ill-served obstetric service without disaster. The symbiosis demands junior obstetric staff who are well supervised by informed and sympathetic consultants and midwives, and the facility for monitoring intensively the condition of each mother and fetus throughout labour. Similarly, obstetricians would be ill served by a reluctant anaesthetic department that gave only grudging and occasional epidurals (when the "exigencies of the remainder of the service" permit of such beneficence), for that also is an invitation to disaster.

To summarise, continuous lumbar epidural block gives outstandingly the most comfortable and happy labour and delivery, and so greatly increases the chance of early

communion among mother, infant, and father—whose presence is welcomed without embarrassment. An epidural is a positive advantage to those patients for whom the exertion and distress of labour without it would be hazardous, and the complications associated with it are uncommon. The benefit it gives to the healthy mature infant is minimal, but the sick or high-risk fetus has a much diminished chance of either death or permanent damage if labour and delivery are conducted under an epidural in experienced hands.<sup>36</sup> We must, however, always make this caveat: the conduct of labour and delivery is a matter of informed team work. An epidural block is not to be lightly administered by anaesthetists who know little of obstetric or midwifery matters, or accepted by obstetricians and midwives merely to relieve them of the stress of the occasional "difficult" patient. Infrequent use would lead to disasters and bring it into disrepute. It must therefore be an integral part of a delivery suite service in which obstetric and midwifery care is of the standard our community has a right to expect in the final quarter of the twentieth century.<sup>37</sup>

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