MEDICAL PRACTICE

Clinical Topics

Lumbar epidural analgesia in labour: a 24-hour service provided by obstetricians

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Summary

Of 309 consecutive cases of epidural analgesia provided by obstetricians, 250 were set up by junior obstetric staff. Midwives managed the epidural analgesia and gave the top-up doses as part of their traditional role in providing pain relief in labour. This practice was thought to be influential in producing a high spontaneous delivery rate. With specialised training and clinical integration the benefits of an epidural analgesic service can safely be provided by obstetricians in a small maternity hospital.

Introduction

If properly managed extradural block provides obstetric analgesia second to none in efficiency, and the provision of an epidural catheter for top-up doses introduces a flexibility that allows the technique to be adapted for almost any eventuality in modern obstetrics. There is an enormous variation in the use of epidural analgesia in Britain. One of the reasons for this is the few anaesthetists who either can or are willing to give obstetric epidural analgesia.

Current obstetric thought favours centralising maternity services because it is argued that it becomes practicable to provide a contemporary service only in large units. This argument is applied to pain relief when the aim is to provide an epidural analgesia service in units large enough to support sufficient anaesthetists for a pain-relief team. When staffing allows this, however, the incursion of anaesthetists into normal labour is not always appreciated by midwives, who often prefer to manage pain relief independently.¹ It has been accepted practice for obstetricians, particularly in the Oxford region,² to provide epidural analgesia by the caudal route for many years. More recently, obstetricians have used the lumbar route because anaesthetists have shown this to be preferable in most cases, and there is no evidence that the caudal route is any safer for obstetricians.³

We report a study of two years' experience of a 24-hour epidural analgesia service provided by obstetricians in an integrated specialist/general practitioner maternity unit that provides for about 700 deliveries a year and acts as a satellite to a district general maternity unit.

Patients and methods

In two years 309 consecutive lumbar epidural analgesias were provided by obstetricians, some 250 of them carried out by junior obstetric staff in training grades. A detailed questionnaire about the epidural anaesthetic was filled in by each patient at the time of her delivery. The aim was to make epidural analgesia available to all patients in labour at their request or on the request of the midwife, with the patient's consent.

Patients having labour induced on medical grounds were offered, and in some cases advised to have, epidural analgesia. Epidural analgesia was used for pain relief in obstetric complications such as breech presentation, twins, posterior positions and trial of labour, and labour after a previous caesarean section. The only contraindications were gross obesity, intrapartum haemorrhage due to

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placental abruption, and suspected coagulopathy. When a patient with a known intrauterine death was being induced, however, she was offered epidural analgesia provided the results of her coagulation screen were normal.

Patients were given factual information about pregnancy and what to expect in labour at their antenatal classes. Two cine films were made about antenatal care and pain relief in childbirth by Dr G L Kennedy, a general practitioner obstetrician on the staff of the maternity unit. Patients were encouraged to join in decision-making about pain relief in labour so far as possible. It was notable, however, from the recurring question, "but what do you think, doctor?" that many patients from the Fenland area wanted informed opinion rather than to be presented with several options about which they had no personal experience.

Junior obstetric staff in the senior house officer and registrar grades learnt how to provide epidural analgesia for pain relief in labour as part of their basic obstetric training. They were taught how to deal with possible complications and were able to pass an endotracheal tube. One of the junior obstetric staff was always resident in the maternity hospital while a duty anaesthetist was available on call.

Before an epidural catheter was inserted all patients had their blood pressure recorded and a forearm vein cannulated so that if hypotension occurred this could be corrected by expanding the blood volume with intravenous Hartmann's solution. The epidural space was located by the loss-of-resistance method using air in a glass syringe. An Everitt disposable pack was used that among other items contained a 16-gauge Tuohy needle, glass syringe, epidural catheter, and Millipore filter. In teaching it was found that most junior obstetric staff actually located the epidural space quite easily, but initially they had difficulty inserting the Tuohy needle at the correct site and in the correct plane between the dorsal spines of a lumbar vertebral interspace. If an epidural catheter would not pass through a needle thought to be in the epidural space junior staff were taught to resist the temptation of advancing the needle further, which would probably result in a dural tap. They were taught to withdraw the needle and relocate the space once more. If the catheter once again would not pass then another space would be used.

The local analgesic agent was bupivacaine plain 0.25%, 8-10 ml, except when this provided inadequate analgesia or before an instrumental delivery, when the strength was increased to 0.5%. The first dose of bupivacaine was injected through the epidural catheter, never through the Tuohy needle. This with the patient sitting upright was thought to reduce the risk of an accidental high spinal anaesthetic. Thereafter patients were nursed on their sides or sitting upright. They were allowed to lie on their backs only while wedged with a pillow to provide lateral tilt. Hypotension amounting to a systolic blood pressure of less than 100 mm Hg or causing symptoms of dizziness or nausea was treated by placing the patient on her side and giving a rapid intravenous infusion of Hartmann's solution.

Progress in labour was assessed and management was decided on the basis of a partogram on which observations of cervical dilatation and descent of the vertex were plotted. A cardiotocograph (FM3 Sonicaid) was used to monitor the fetal heart rate and uterine contractions whenever possible, but a shortage of monitoring equipment did not permit all epidural analgesia cases to be monitored.

Results

A successful block was provided in 98% of 309 cases (see table) and there were few side effects. When patients filled in the questionnaire on their epidural 80% were enthusiastic about the pain relief provided, and the remainder were helped. Many patients stated that they would like to have epidural analgesia the next time they had a baby.

The introduction of epidural analgesia has resulted in a small rise in the overall forceps rate in the hospital but a decrease in the use of

general anaesthesia. In the first year of the study there were 713 deliveries and 9.4% of patients had epidural analgesia. The overall incidence of forceps delivery was 9%. The next year there were 744 deliveries, 27.5% of patients had epidural analgesia, and the overall forceps rate was 14.5%. At the same time the demand for general anaesthesia fell by 32%.

Discussion

With increased patient demand for epidural analgesia it soon became apparent that if planned induction was to be avoided and if a 24-hour service was to be provided then junior obstetric staff should be taught to give epidural analgesia as part of their in-service training. We believe that obstetricians in training should acquire experience in this technique. In extending the epidural analgesia service much emphasis and careful planning were directed towards providing a safe service. Instruction embraced aspects of resuscitation that any doctor working in an intensive care area such as a labour ward should be familiar with. Practice in passing an endotracheal tube was obtained in theatre on routine gynaecological lists, but junior obstetric staff learnt to do epidural analgesia in the labour ward, where they watched several procedures before attempting one themselves, and were then carefully supervised for the first 10 attempts.

The technique of using air as a locator for the epidural space left no doubt whether a dural tap had occurred and virtually excluded the possibility of an accidental spinal anaesthetic. Close supervision resulted in only seven dural taps. These patients were provided with an epidural anaesthetic that worked through an adjacent lumbar space and were given an epidural infusion of Hartmann's solution 1500 ml over the 24 hours after delivery as prophylaxis against headache. One patient, whose headache persisted, obtained prompt relief when she was given a blood patch in the epidural space.

The forceps rate in this series was lower than that reported by Hoult *et al.*⁴ In 211 patients using epidural analgesia and delivered vaginally they reported a forceps rate of 71% in primigravidae and 42% in multigravidae. Epidural analgesia may be, but is not always, used with great flexibility to suit the needs of patient and midwife. Patients in our series were given pain relief as requested but were encouraged by midwives to experience some normal contractions before using their epidural analgesic for pain relief. Once an epidural catheter had been sited pain relief could be obtained within a few minutes of depressing the plunger of a syringe loaded with bupivacaine (virtually at the press of a button).

The policy of encouraging both the patient and midwife to manage the epidural analgesia rather than presenting the midwife with a patient with an extensive block allowed the technique to be used to the best advantage, permitted a relatively low forceps rate, and resulted in a rising demand by patients and midwives. Once midwives had become familiar with epidural analgesia they had no difficulty in correcting asymmetrical blocks or episodes of hypotension that invariably responded to placing the patient on her side and giving intravenous fluids. Patients were given the option of letting their epidural analgesia run light before they started bearing down in the second stage, whose onset could often be predicted from the partogram. A top-up with bupivacaine at full dilatation when the head was still in the midcavity of the pelvis made a forceps delivery more likely but patients were not denied a top-up if they wanted one at this time. Patients were allowed to bear down in a propped-up position if this was found to be advantageous.

Some midwives did not encourage bearing down efforts until the vertex was visible, this being consistent with this hospital's management of the second stage before the introduction of epidural analgesia. There seemed to be no sound reason for a change in management so long as the fetal heart was being monitored with a cardiograph and the trace was satisfactory. McQueen and Mylrea⁵ have reported on a study that supports the view that it is safe to leave a patient lying on her side in the second stage of labour if she has epidural analgesia, but recom-

Results in 309 cases when lumbar epidurals were given

	No of cases
Successful block with pain relief	303 (98%)
Failed epidural	6 (2%)
Forceps delivery	94 (30.4%)
Spontaneous delivery	181 (58.5%)
Caesarean section	28 (9.1%)
Side effects	
Dural taps	7 (2.2%)
Hypotension needing treatment	24 (7.7%)
Loss of urge to bear down	125 (40.4%)
Catheterisation after delivery	12 (3.9%)

mend that the patient is not left for more than an hour before she starts pushing.

The discrepancy between the 98% of successful epidural analgesic blocks and the 80% of patients who expressed enthusiasm for their pain relief in labour reflects on the success or failure in management of patients in labour, which was influenced by their expectations and on the way they related to midwives and doctors. A further top-up of bupivacaine 0.5% was usually given in a sitting position before carrying out perineal suturing, and perineal analgesia was taken as confirmation that the epidural analgesia was successful. Some of the 18% who had reservations about their epidural analgesia said that they would like to have felt more, while others objected to feeling any pain at all—and one objected to the discomfort of having adhesive tape removed from her back when the epidural catheter was removed after the delivery.

There was one intrapartum stillbirth, which occurred early on in the series and gave rise to some concern. The fetal heart disappeared before full dilatation, but there was no evidence of hypotension complicating the epidural analgesia, and the patient was lying on her side in labour. This was an unstimulated premature labour when there were signs of placental insufficiency. The stillborn infant weighed 1720 g. This case adds a note of caution because a cardiograph was not available, and had one been available probably the outcome might have been different. We subscribe to the view that the best intrapartum care demands total fetal monitoring whatever type of analgesia is being used. There was also a neonatal death in a 29-week gestation when labour was induced because of fulminating pre-eclampsia.

Epidural analgesia with the back-up of fetal monitoring has had a refining and refreshing impact on labour ward management and because of changed emphasis the labour ward is now an intensive care area that may more properly be called a delivery suite. Midwives find patients easier to manage because with adequate pain relief they are more co-operative. The windows double-glazed to keep the sound in are now open to the hospital garden. Pain in labour is an extra suffered only by those enthusiasts who take pride in enduring it. The demands for general anaesthesia have decreased in this hospital. This is part of a wider trend; regional anaesthesia lends itself very well to obstetrics and with changing attitudes the scope of epidural analgesia is likely to be extended.

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Some Europeans in remote high mountain sites in Saudi Arabia suffer from essential hypertension. Is this usual when working at that height for perhaps many months, and is continued living and working at these sites unwise? Will return to ground level restore normotension?

Systemic blood pressure is reduced in communities living at high altitude in the Andes (3000-4000 m).¹ A similar adaptation occurs in sea-level residents after acclimatisation and some patients with hypertension will improve at altitude. These phenomena are generally attributed to the effects of hypoxia. A single exception has been reported from Ethiopia, where the blood pressure among native highlanders at 3000-3700 m was greater than that of lowlanders.² It may be that the Europeans referred to have a pathological response to altitude comparable with the exaggerated polycythaemia and diastolic hypertension found in a few natives living in the Andes (Monge's disease), in which case return to sea level would be advisable. It is a general rule that such a step reverses the haemodynamic effect of high altitude.

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What is the incidence of recanalisation or rejoining of the vas after vasectomy? Are there any long-term side effects?

Recanalisation after vasectomy depends on the skill and experience of the operator and the surgical technique used. The average recanalisation rate after vasectomy is low, but a large series with careful follow-up is required to relate the rate of occurrence of this complication to the technique used. Such a series was reported from the Margaret Pyke centre, London,¹ when reunion of the vas occurred in six of the 1000 cases operated on. In each case the method consisted in excision of a segment of vas and ligation of the divided ends by a non-absorbable ligature. Numerous other less straightforward surgical methods have been described, but to date the most successful and simple method to prevent rejoining of the vas has been reported from California,² where there was no instance of recanalisation after vasectomy in 1300 patients. The method used was that of cautery of the lumen of each divided vas deferens after excision of a

1-cm length, followed by the application of a single tantalum clip to the sheath of the proximal vas.

Of the possible long-term effects after vasectomy, the incidence of appreciable psychological disturbance can be minimised by adequate preoperative counselling of husband and wife. One important long-term implication of the operation arises when (because of a change in circumstances) the vasectomised patient wants the operation reversed. Advances in microsurgical technique have considerably increased the success rate of this procedure³ but it would still be unwise to emphasise this possibility of reversal when counselling—in case this knowledge persuades a patient to undergo what is not necessarily a reversible procedure. Whatever technique is chosen, it is important to consider the possibility of later reversal and not jeopardise this by removing an excessive length of vas.

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What is the cause and prognosis of central serous retinopathy?

Central serous retinopathy is a condition in which there is serous detachment of posterior retina without evidence of inflammation. It occurs typically in the young, and fluid in the subretinal space is believed to be derived from a focal point of leakage in the pigment epithelium, which allows the interstitial fluid of the choroid to seep into the space between the sensory retina and retinal pigment epithelium. The cause of this leakage is unknown, although allergy may play a part and it occurs in anxious young men. There is no scientific evidence to support either of these suggestions, although this condition is certainly more common in men than in women. Some people seem prone to this condition since bilateral affection is common and recurrent affection also occurs. The condition usually resolves spontaneously with recovery of normal or near normal vision; residual visual loss is rare. No medical treatment influences the disease, although many therapeutic measures have been tried. Photocoagulation shortens the attack, but as there is no evidence that the final visual recovery is influenced by this treatment we do not treat it except when the temporary visual disturbance affects the patient's capacity to work.