

A TECHNIQUE COMBINING NEUROLEPT-ANALGESIA WITH LOCAL ANALGESIA FOR CAESAREAN SECTION*

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SUMMARY

A technique of combining neurolept-analgesia and local anaesthesia for caesarean section is described, together with the necessary modifications in surgical technique. The results of a small series are analysed.

This is found to be a safe and useful technique, and is regarded by the authors as being preferable to general anaesthesia where the services of a skilled anaesthetist are not always to hand.

Throughout the rural areas of this country and indeed in most developing countries, caesarean section is probably the most commonly performed abdominal operation. Because it is an operation involving the safety of two people, both mother and child, it presents particular problems to the anaesthetist. Customarily general anaesthesia is used, induction being by thiopentone with intubation under a relaxant, the anaesthesia being maintained on a light plane with nitrous oxide and oxygen until after the extraction of the baby. In experienced hands this sequence is both safe and satisfactory, but there are well recognized dangers which become more menacing when experience is lacking or when there is a need for immediate and unprepared operation, as for prolapsed umbilical cord. These dangers include respiratory depression and anoxia in the baby, and inhalation of vomited material as a risk to the mother.

Since such anaesthesia must necessarily be administered by non-specialized workers in small units scattered through the country, it appears that a satisfactory local anaesthetic technique would be most desirable, if it could be humanely achieved.

Lower segment caesarean section has been regularly practised in this unit for 20 years. In common with other

centres dealing with Bantu patients, we have a high rate of section, around 11% annually or approximately 200 sections a year out of 1700 deliveries. Originally the only basal sedation given was Pethilorfan (Roche) — pethidine and nalorphine—100 mg intramuscularly $\frac{1}{2}$ -1 hour before operation. This was fairly satisfactory, but there were always patients to whom the procedure was beyond endurance. Elective sections, where the patient was not tired but had spent hours in anxious anticipation were often unsuitable, as were the highly apprehensive patients, and those having repeat operations with tough scars difficult to render analgesic. In this 'unsatisfactory' group it was sometimes necessary to add thiopentone after delivery, which had all the dangers of general anaesthesia without the safety given by intubation, thereby defeating the ends of a local anaesthetic technique.

A number of agents were tried to provide additional sedation, but all had disadvantages, either foetal depression when using phenothiazines or a tendency to bleed with diazepam. Droperidol has proved the most satisfactory additional agent. It has been shown¹ to be free of any respiratory depressive activity, and to produce little cardiovascular disturbance.^{2,3,4} In our experience it has not produced any added tendency to postpartum haemorrhage.

Droperidol induces the required state of mental detachment, and has two other desirable effects; it is anti-emetic and reduces sensitivity to adrenaline and nor-adrenaline.⁵ The latter quality makes for safety when using adrenaline-containing local anaesthetic, and may be of importance in pre-eclamptic patients. Given intravenously, droperidol is effective within a few minutes and has a duration of action of 6-8 hours. It is contraindicated in liver disease and in depressive persons. Its principal danger is a tendency to depress the blood pressure⁶ and for this reason it should

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be given in divided doses, with 5-minute blood pressure checks between each 3 mg, to a usual dose of 15 mg.

THE TECHNIQUE

Premedication of Pethilorfan 100 mg and atropine 0.6 mg is given intramuscularly $\frac{1}{2}$ - 1 hour before operation.

On arrival in the operating theatre an intravenous infusion, using 10% invert sugar in Ringer's lactate is set up, and droperidol 10-15 mg⁵ is given intravenously in the spaced doses mentioned above. The blood pressure is checked every 5 minutes, and sodium bicarbonate 4.2% is given by infusion if there is any tendency for this to fall. Local analgesia is given, using 1% procaine with adrenaline. Not more than 100 ml of the analgesic solution should be used in all.

The distribution of local analgesics is: 10-15 ml immediately beneath the skin under the linea nigra, 40 ml is infiltrated into the rectus muscle on either side, 5 ml being given at each of 4 points between the pubis and the umbilicus, paying particular attention to the lower part of the wound which will be the most stretched. The midline incision is then made down to the linea alba, and a further 10 ml is infiltrated immediately beneath this throughout the length of the wound. This is most important, since difficulty may otherwise be met in the anaesthetizing of the parietal peritoneum. A final injection of procaine, usually 10 ml, is given under the visceral peritoneum of the lower segment.

Using this method, no packs can be introduced into the peritoneal cavity nor can retractors be used. Adequate exposure can, however, readily be achieved by gentle lifting of the wound edges, and, when suturing the uterus, using the corner stitches to rotate the uterus from side to side as required. The degree of analgesia and dissociation achieved is adequate to ensure painless delivery in uncomplicated operations, and to be able to undertake more difficult manoeuvres if mishaps arise. For added ease it is sometimes wise to give fentanyl 0.1-0.15 mg intravenously after the cord is clamped.⁶

THE PRESENT STUDY

Sixty-six successive caesarean sections were studied and the mothers assessed for discomfort and the memory they had of the operation. The patients were almost entirely Zulu, with a few Basuto. The indications for their operations were as follows:

TABLE I. INDICATIONS FOR CAESAREAN SECTION

Cephalopelvic disproportion	42
Foetal distress	32
Previous caesarean section	14
Abnormal position	8
Antepartum haemorrhage	5
Prolapsed cord	2
Failed vacuum extraction	1
Renal disease in mother	1

More than 1 indication for operation was present in 39 cases.

Grading of discomfort was necessarily difficult. Four grades were determined: nil (slept through the operation); minimal (grimaced at time of extraction of head); moderate (grimacing, limb movement, verbal complaint); and severe (movement, protest, crying out).

According to these criteria the assessment of pain was as follows: nil—31, minimal—22, moderate—13 and severe—0.

An attempt was made on the following day to estimate the recollection of the operation. A few remembered it as a painful experience, rather more could recall moments of pain when asked direct questions and many had no memory of the procedure at all. A few unconnected memories could be recaptured: 'a bright light above me'; 'hearing my baby cry'; 'being shown my baby'; and 'the doctors making a lot of noise'.

A feature of the postoperative course in these patients was the reduction in need for postoperative sedation during the first 24 hours. The nursing staff have been enthusiastic about the high morale, greater co-operation and earlier mobility of the patients.

The condition of the babies was assessed by the Apgar rating at birth and 5 minutes after birth. Sixty-eight babies were born in the series, among whom there were 2 deaths in the neonatal period. At birth the Apgar rating was 10 for 27 of the babies, and 5 or under for 15. After 5 minutes, 56 had achieved a rating of 10 and only 4 remained at a rating of 5 or less.

Haemorrhage seemed to be reduced. Though notably inaccurate, assessment of blood loss was attempted in every case. Five patients were believed to have lost a litre or more, while in 43 the loss was under 500 ml. Only 1 patient required a blood transfusion.

DISCUSSION

With only 2 exceptions, all the deliveries were conducted in labour or after a trial of labour, and operation was not resorted to until it became obvious that it would prove necessary. This had the advantage that all the women were in some degree of fatigue, which is noticeably helpful in their response to local analgesia. At the same time the trial of labour increased the chances of significant foetal distress, so that it became a feature in almost 50% of the operations (32 of 66). The good Apgar scores within 5 minutes of birth in these babies suggest that they are relatively unaffected by the procedure, having no anaesthetic agents to overcome as they take their first breath.

There were no cases of the respiratory distress syndrome in this series, nor have we seen this in the large numbers of babies delivered by this technique before and after the period covered by this study.

The 3 operators agree that the limitations on surgical technique—no packs, no retractors—do not significantly hamper the surgeon or add to the dangers of the operation, should any accident occur. The technique does, however, demand gentleness on the part of the operator, and an avoidance of sudden movement. As with all operations done under local analgesia there is a necessity for the theatre staff to remember that the patient is conscious, and for a degree of seamliness and modesty of behaviour to be maintained throughout the procedure.

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