

## Anaesthesia-Analgnesia in Obstetrics

Dr. D'Bras read a paper on Obstetric Anaesthesia and commenced by stressing that the diverse techniques advocated strongly suggested that no very good technique had yet been discovered. Whatever technique was chosen must fulfil certain essentials:—

1. There are 2 people to think of at the same time—mother and child. The object is to provide efficient anaesthesia for the one with the least possible disturbance to the other. Unfortunately, the placenta is an inefficient barrier to the passage of either sedatives or anaesthetic drugs and relaxants from mother to foetus, and sedatives must be avoided when delivery is expected within 4 hours and the minimum dose of anaesthetic agents used.
2. Diet is usually unrestricted to women in labour so that the patient has a full stomach when presented for surgery. Also, Gastric emptying time is prolonged at term and, in prolonged labours particularly, a state akin to Paralytic ileus exists. The risk therefore of vomiting or regurgitation of fluids is always present and the anaesthetist must always keep an eagle eye open during the entire anaesthetic procedure if catastrophes from inhalation of vomited or regurgitated material are to be avoided.
3. Splinting of the diaphragm by the large uterine mass causes the patient to rely for most of her breathing on thoracic respiration and any anaesthetic procedure — spinal particularly that diminishes intercostal activity will lead to anoxia.
4. Blood loss may be sudden and severe at any time so that the setting up of a reliable I.V. drip before anaesthesia is started is imperative.

5. The requirements of the operator must be met. Except for version and for the presence of a contraction ring when deep anaesthesia is necessary to ensure adequate relaxation of the abdominal muscles and of the uterus itself, a light level of anaesthesia will suffice for most obstetric operations.

The anaesthetic techniques available are general anaesthesia and local anaesthesia and very occasionally a combination of the two.

### General Anaesthesia.

This may be inhalation, intravenous, or a combination of the two. *Inhalation Anaesthesia* has the following advantages:—

- (a) The depth of anaesthesia is readily controllable.
- (b) Breathing and therefore oxygenation, is unaffected except in deep anaesthesia.

Chloroform because of its direct toxic action on the heart muscle and because of the increased risk of liver damage in patients whose labour has been prolonged, or who have been vomiting or have not taken food during the proceeding 48 hours is better avoided.

Emptying of the stomach either by inducing vomiting or by the passage of a stomach tube should be routine even though the last meal of solid food may have been taken 24-48 hours previously. Simple explanation of the need for passing a stomach tube never fails to elicit co-operation.

Premedication should be with atropine only.

1/100 gr. atropine sulphate subcutaneously at least 1/2 an hour preoperatively or intravenously five minutes before induction, is usually satisfactory.

Induction of anaesthesia should always commence with the patient in a 5°-10° head down tilt and only when an efficiently working sucker is immediately at hand, so that the risks from vomiting should it occur be reduced. For the same reason the face piece should never at any stage be strapped to the face and induction should be as rapid and smooth as possible. A rapid induction enables a quick passage through the vomiting stage to the stage of surgical anaesthesia and without much anaesthetic agents having crossed the Placental barrier. The judicious use of carbon dioxide facilities rapid induction by stimulating respiration.

The inhalational agent or agents used should be that with which the anaesthetist is most familiar. Only thus can the anaesthetic be safe and the least possible amount of anaesthetic agent be used. My own preference is for a nitrous oxide (6L), oxygen (3L), cyclopropane (900 cc), either technique. Cyclopropane is discontinued once the patient tolerates the ether.

*Intravenous Anaesthesia* is only convenient for the anaesthetist. The risk of vomiting and regurgitation from the stomach and the depression and even complete cessation of respiration that accompany the use of intravenous barbiturates makes this method hazardous, and if one is not absolutely sure that the stomach is empty and that efficient artificial respiration can be rapidly instituted, intravenous anaesthesia is absolutely contraindicated.

*Combined Anaesthesia* is an induction of anaesthesia with a sleep dose of an intravenous Barbiturate followed by inhalational agents. This method calls for skill and experience. The risk of vomiting, depression of respiration, and foetal depression are still present.

#### *Local Anaesthesia*

A local technique offers substantial advantages. It is non-toxic to the infant—particularly the premature. There is no vomiting hazard. The mother can be made to feel she is playing an active part in the

birth of her child. It is the method of choice in uncontrolled Diabetes. The pain of labour can be relieved with certainty—but labour is then invariably prolonged so that the incidence of forcep deliveries is much increased. To obtain the best results from a local technique, the mother must be told all about the procedure. Also, because heavy sedation is inadmissible in obstetrics, the local technique must be perfect and time must be given for the full analgesic action of local agents to be established before permitting surgery.

The methods of local anaesthesia available are:—

- (a) *Spinal*—This is the most popular of the local techniques because of ease of administration and the relaxation of skeletal muscle, the active uterus, and the absence of ill effect on the foetus.

The hazards are immediate and remote. These may be reduced to insignificant proportions by careful aseptic injection technique using only autoclaved apparatus and autoclaved analgesic agents.

A careful choice of patients. And constant watch over the patient until the effects of the spinal wear off.

For forceps delivery and perineal repair a low block using 0.5 cc. 1/200 cinchocaine in 6% dextrose with the patient in a sitting position during injection and for five minutes afterwards, is very satisfactory.

For caesarean sections a higher block—a sensory block between T8 T10 injecting 0.8 cc. to 1 cc. 1/200 cinchocaine (Nupercaine) in 6% dextrose with the patient on her side and then turning her onto her back and into a 5° head down tilt with a pillow under her head and scapulae, gives excellent results. Oxygen (5L/minute) should be delivered over the patient's face so that she has an oxygen enriched atmosphere to breathe whilst her lower intercostal muscles are paralysed. Methedrine 1 cc. (20 mgms.) intramuscularly is a wise precaution against a fall in B.P. Nausea and vomiting during a Spinal Anaes-

thetic usually result from a fall in the B.P. level and from mild degree of anoxia due to intercostal paralysis.

(b) *Extra Dural*: This is the injection of an analgesic solution into the extra dural space either as a 'oneshot' technique or by intermittent injections via an indwelling catheter or a maleable needle. This method has all the advantages. Unfortunately, however, identification of the extra dural space may sometimes be very difficult and marked falls in B.P. may occur so that the procedure is not without certainty and not without some risk.

(c) *Pudendal Nerve Block*: This is a very valuable technique and deserves greater popularity. It provides excellent conditions for low forcep delivery, breech extraction, episiotomy and perineorrhaphy. The injection technique briefly is: Wear two gloves on each hand if the injection is to be bilateral. Use a 3" or 4" long needle. Limit the total dose of local analgesic agent to 500 mgm. in 50 cc. of 1% Lignocaine or Procaine. Always test to exclude intravascular injection of analgesic solution.

A finger in the rectum will guide the needle along the medial surface of the ischium and under (posterior) to the spine of the ischium.

5-10 cc. of solution is deposited around the lateral and under surfaces of the ischial tuberosity to block the Perineal branch of the post. cutaneous nerve of the thigh.

5-10 cc. of solution is deposited along the medial surface of the tuberosity and between the tuberosity and the ischial spine to block branches of the Pudendal nerve.

5-10 cc. of solution is deposited posterior to the ischial spine—the needle must be felt to pierce the sacrospinous ligament much as a spinal needle pierces the ligamentum Fla-

vum — blocks the Pudendal nerve. *This is the best location to Anaesthetise the Pudendal nerve.*

Wait at least 10 minutes after injection for the full effects of the analgesic solution to come on before allowing surgery.

(d) *Infiltration* in the laying down of analgesic solution in the line of and in the depth of the incision. This is the easiest application of the local techniques.

Dr. D'Bras then mentioned the resuscitation of the infant by saying—no two people agree on what is the best line of treatment. Some relevant facts are.

(a) The stimulus that initiates respiration is still unknown.

(b) Expansion of lung alveoli is said to be due to expiration against closed cords—as in crying.

(c) An infant can tolerate 10-15 minutes of complete apnoea.

(d) *Analeptics*—their initial brief stimulant action is followed by a longer period of depression so that the final state may be worse than the first when these drugs are administered.

(e) *Nalorphine* (N'ally Nor Morphine), claimed to antagonise the respiratory depressing action of Opiates and Pethidine. However, Nalorphine should not be used lightly as it—

(a) has a respiratory depressing action of its own.

(b) Increases morphine depression when given with small doses of morphine.

(c) May have a long latent period before its effects are apparent.

In cases where the mother has been overdosed with either morphia or Pethidine Nalorphine (20 mgms.) intravenously to the mother a few minutes prior to delivery or 0.2 mgms. injected into the umbilical vein of the infant after delivery has given satisfactory results.

With these few facts he considered the line of treatment should be—

(1) Clear the airway—from the very moment the face is delivered.

- (2) Insufflate Oxygen over the face.
- (3) Wait.
- (4) Nalorphine may only be tried when foetal respiratory depression is due to maternal overdosage from morphia or pethedine.

*Dr. (Miss) Oon* then asked what advantage had methedrine over ephedrine. To this *Dr. D'Bras* said that the former was better because its action was more prolonged and did not have much action on heart muscle.

*Dr. T. K. Chong* wondered about any relationship between the duration of anaesthesia and the length of time required to resuscitate the child.

*Dr. D'Bras* was of the opinion that this depended on the type of anaesthetic used and with regard to inhalation agents the longer it is given then the higher the concentration in the mother's blood and therefore the more difficult to resuscitate the baby.

*Dr. Koh* asked about the possibility of shock following cyclopropane.

*Dr. D'Bras* said that cyclopropane shock is now recognised to be due to excessive carbon dioxide accumulation in the blood. Cyclopropane depresses respiration. Due to the high concentration of oxygen used the diminished tidal exchange does not cause cyanosis  $\text{CO}_2$  tends to reach a high concentration. When the concentra-

tion of  $\text{CO}_2$  is suddenly lowered this peculiar phenomenon associated with shock is sometimes seen. To prevent this one should reinforce the respiration if cyclopropane is being used for any length of time.

*Dr. Oon* then asked whether any of muscle relaxants pass on to the foetus when given to the mother.

*Dr. D'Bras* replied — Experiments on dogs showed that, in clinical doses, none of these dosage pass through the placenta, but in higher doses they all pass through. Flaxedil passes through more readily than the others. Thus if a muscle relaxant must be used in an obstetric patient flaxedil is best avoided.

*Dr. Lean* asked about the giving of apomorphine to empty the stomach before giving any emergency general anaesthetic.

*Dr. D'Bras* replied—Apomorphine is a valuable agent but it produces vomiting by a central action. Thus if the vomiting centre is depressed say by pethidine it may not work. In itself it is also a depressant of the respiratory centre. The best method to empty the stomach would be to induce vomiting by irritating the posterior pharynx or the use of a stomach tube though the tube may not be very efficacious if a solid meal had been taken.

After numerous questions by many speakers the meeting closed.