

Section of Obstetrics & Gynaecology

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Abolition of Prolonged Labour

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Impact of Active Management on Delivery Unit Practice

The results, in obstetrical terms, of a co-ordinated policy of active management have been published (O'Driscoll *et al.* 1969, 1970). The domino effect has been used to illustrate progressive reductions in the incidence of prolonged labour, cephalo-pelvic disproportion, posterior position, operative interference and trauma to the foetus. Good uterine action has become the key to successful labour.

Aspects of obstetrics that have attracted little attention in the past are the related questions of unit costs and efficient deployment of nursing staff. It may be of interest, therefore, to consider the effect of active management on nursing services.

The Delivery Unit at the National Maternity Hospital contains five rooms in which 6225 babies were born in 1970. The complete nursing complement was thirty, of which ten were trained and twenty were student midwives. There was no other category of nurse. To ensure that every woman in labour had personal attention, one room was allocated to each student midwife. The number of babies born for every nurse employed was 207. This compares with an average figure of 84 in a sample of five similar hospitals in Aberdeen, Belfast, Cardiff, London and Oxford.

The contrast in productivity is even greater when skilled personnel only is considered. At the National Maternity Hospital ten trained midwives operated a system of eight-hour shifts which

ensured that there was one sister and one staff midwife on duty at all times. The number of babies born for each trained midwife was 622, which compares with an average figure of 173 in the other hospitals – in spite of the fact that trained midwives in Dublin worked 4½ hours less per week than in the other hospitals, a gap which increased to 7 hours in 1971, when hours were reduced to 33 and to 40 per week respectively.

In economic terms the unit cost of production, relating nurses' salaries to the number of babies born, was £4.72 in Dublin, which compares with approximately £12 in the other hospitals. Salaries are approximately the same.

The ideal combination of a nucleus of skilled staff with personal attention to every patient is possible only in a busy unit in which there is a fast turnover. Staff can be deployed productively when there is no bottle-neck and an intensive care delivery unit can be established, with every patient receiving special attention simply because she needs it for a shorter time. At the National Maternity Hospital there were 3.4 babies born in each room on every day of the year during 1970.

In my opinion, maternity hospitals are usually too small to be efficient in terms of either medicine or economics, particularly to meet the standards required of a modern intensive care delivery unit. A structural design suitable for intensive care is needed, and anyone responsible for building a new maternity hospital must plan on the basis that labour will be controlled everywhere within a few years. This should lead to a small number of large units, with not less than 5000 deliveries a year.

In conclusion, the position is that four years and 23 000 deliveries after the introduction of a comprehensive policy of active management in

the largest maternity hospital in Britain or Ireland, the benefits are still being assessed. These extend beyond mother and child – to doctor, nurse, and administrator.

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Drug Therapy in Labour and Reduction of Induction-delivery Interval

New methods of efficiently administering oxytocin, particularly to reduce the induction-delivery interval, have highlighted some major principles of drug administration. (1) Drug usage differs according to whether the circumstances are 'acute' or 'chronic'. 'Acute' situations include anaesthesia, intensive-care episodes and labour. 'Chronic' covers most general practice and medical therapy. Often in chronic situations effective drug levels are never achieved and any influence is of a placebo nature. (2) Drug response depends on a whole series of variables such as the patient's weight, severity of symptoms or disease, route of administration, and metabolism. (3) It follows that often in acute situations there is no such thing as a 'routine' dose. (4) In an acute situation sub-threshold dosage is a potentially dangerous waste of time, while excessive dosage is also dangerous with potent drugs. (5) In acute situations it is of greatest importance to establish the minimal effective dose in the shortest possible time and to maintain it for as long as necessary. (6) To achieve this, inhalational and intravenous routes are the most appropriate – oral and intramuscular administration have little place in acute pharmacology. Using these routes with drugs which produce rapid effects, a logarithmic rather than an arithmetic progression is often appropriate to establish the minimal effective dose. (7) Efficacy

should be assessed by specific recording of the relevant parameters.

Labour as an 'Acute' Situation

Recently there has been a widespread reappraisal of our approach to labour and it has come to be accepted for purposes of care as a high-risk episode, qualifying for intensive management principles. It is now appreciated that to allow such an acute situation to be unnecessarily prolonged is bad for baby and mother. Also, the longer patients are in the intensive labour-care areas the less care any individual one will get and the fewer can be accommodated. For crystallizing this active management approach we must thank Professor O'Driscoll and colleagues (1969, 1970) for what must be regarded as a significant milestone in clinical obstetrics.

It is, however, important to remember, as the perinatal mortality survey data emphasize (Butler & Bonham 1963), and as is borne out by studies on precipitate labour, that the extremely short labour is also hazardous. This serves to remind us that by its warning nature labour pain has a vital protective function. The completely painless labour is a potential disaster, with the baby liable to be born in the street or the lavatory. This function of pain needs restating. Some of us have been almost brain-washed by the propaganda of the disciples of the natural childbirth cults to the effect that pain in labour is unnecessary. This is not so – it only becomes so once labour has been diagnosed and intensive care initiated.

Drug usage in labour has not been updated with this new intensive-care approach. With the notable exception of the practice introduced by Professor Turnbull and his colleagues in relation to oxytocin (Francis *et al.* 1970), much drug administration in labour is inefficient.

Applications of Pharmacological Principles

Oxytocin in induction of labour: We have used the automatic log-increment pump (ALIP), as developed by Turnbull, for over a year. The data refer to inductions up to the beginning of August 1971, in 66 primigravidae and 63 multigravidae. Infusion was begun within one hour of amniotomy. Some cases were electronically monitored with a cardiotocograph, but the majority were not. We used as controls the 66 primigravidae and 63 multigravidae in whom labour was induced immediately before the pump became available, indications for induction being similar.

The amniotomy-delivery interval was almost halved, to a matter of 8 hours. As most amniotomies were done in the morning, this meant that