CORRESPONDENCE

Tocolysis and Anaesthesia for Caesarean Section

Sir,—Beta-mimetics are used with increasing frequency as tocolytic agents in obstetrics, and despite claims to greater selectivity for their uterine effects these compounds share the same side-effects—tachycardia, hypotension and uterine atony. These side-effects and their consequences were examined in a comparative retrospective study involving 23 patients treated with buphenine (average 0.3 mg min⁻¹ for a 60-kg patient) and 23 control patients, all undergoing Caesarean section with a standard anaesthetic technique (thiopentone—suxamethonium induction, maintenance with 35% nitrous oxide in oxygen with 0.2% methoxyflurane or 0.5% halothane, analgesia only after delivery with pentazocine or pethidine, syntocinon 5 mg i.v. and 10 mg infusion).

Patients receiving tocolysis (fig 1) had a consistently faster resting heart rate before induction (mean 132 v. 98 beat min⁻¹), reaching an average maximum of 134 v. 118 in the induction-delivery interval, before analgesics were administered, while the slowest average heart rate was 103 v. 87. The heart rate response to surgical stress was strikingly reduced in the tocolysis series, as was the tachycardic response to syntocinon given after delivery (increase of 2.7% v. 13.3% to surgical stress, and of 1.6% v. 7.2% to syntocinon). Overall this led to a "fixed fast heart rate" associated with tocolysis. The variability of the heart rate as assessed by an index (average standard deviation as % of the mean value) was only half that of the controls (7.6 v. 15). By contrast, systolic and diastolic pressures showed little difference between the two groups.

The practical implication of these findings is, first, that the usual signs of inadequate analgesia and of hypovolaemia are obtunded under tocolysis. The fixed fast heart rate may be taken as a sign of inadequate analgesia and result in an overdosage of analgesics; that this risk is real is shown by the fact that on average the patients under tocolysis received more analgesics (0.5 mg kg⁻¹ v. 0.31 mg kg⁻¹ of pentazocine).

A second possible danger is the wrong estimation of blood loss, the tachycardia being interpreted as a sign of hypovolaemia. In the series reported here, although the anaesthetist had no special awareness of these problems at the time, the volumes of i.v. fluids and of blood given during the operation were not significantly different in the two series.

Finally, another risk is obviously that of uterine atony. Perhaps surprisingly, this did not create any problem in these patients, as again confirmed by the volumes of i.v. fluids and blood received. This may be because of the systematic use of syntocinon immediately after delivery.

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FIG 1 Heart rates during operation in patients under tocolysis (T) and in the control series (C). Ind. = induction; del = delivery.