

Fetal and maternal lactate increase during active second stage of labour.

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Comment in

- [Fetal and maternal lactate increase during active second stage of labour.](#) [BJOG. 2003]
- [Fetal and maternal lactate increase during active second stage of labour \(what about the effect of maternal analgesia?\).](#) [BJOG. 2003]

Abstract

OBJECTIVE: To determine longitudinally fetal and maternal blood lactate concentrations during the second stage of labour.

DESIGN: Prospective, observational study of randomly selected labours.

SETTING: Labour ward, Sultanah Aminah General Hospital, Johore Bahru, Malaysia.

MAIN OUTCOME MEASURES: Fetal scalp and maternal venous blood lactate, umbilical arterial and vein lactate and acid-base balance at delivery.

RESULTS: Sixty-nine women and their infants were monitored in the second stage of labour. Mean maternal venous lactate by the end of the first stage was 2.6 +/- 1.0 (+/- S.D.) mmol/L and increased to 3.6 +/- 1.4, 4.2 +/- 1.7, 4.8 +/- 1.6, 5.4 +/- 2.1 and 4.3 +/- 0.9 mmol/L, respectively, for every 15 minute of bearing down. Corresponding values for fetal scalp blood lactate were 2.4 +/- 1.1, 3.1 +/- 1.6, 3.2 +/- 1.8, 4.2 +/- 2.4, 4.9 +/- 2.8 and 5.8 +/- 1.9 mmol/L. The mean slope of maternal lactate increase was 0.070 mmol/L per minute (95% CI 0.050, 0.090) and for fetal lactate increase 0.032 mmol/L per minute (95% C.I.: 0.018, 0.045). The duration of active second stage was significantly associated with fetal lactate ($P < 0.001$) and maternal lactate ($P = 0.03$) at the time of crowning of the fetal head, and lactate in umbilical arterial and vein blood at delivery ($P < 0.001$). Expulsion time \geq 45 minutes, compared with shorter active second stage, and acidaemia at birth implied larger arterial-venous lactate differences ($P < 0.001$). Fetal lactate at crowning was also significantly associated with the umbilical arterial-veonus lactate difference ($P = 0.03$).

CONCLUSIONS: Maternal and fetal lactate concentrations increase significantly with duration of the active second stage of labour, more rapidly in the mother. It is likely that fetal anaerobic metabolism is the main source for the fetal lactate increase.