

Reference values for Lactate Pro 2™ in fetal blood sampling during labor: a cross-sectional study.

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Abstract

OBJECTIVE: Lactate Pro™ (LP1) is the only lactate meter evaluated for fetal scalp blood sampling (FBS) in intrapartum use. The reference values for this meter are: normal value <4.2 mmol/L, preacidemia 4.2-4.8 mmol/L, and acidemia >4.8 mmol/L. The production of this meter has been discontinued. An updated version, Lactate Pro 2™ (LP2), has been launched and is shown to be differently calibrated. The aims of the study were to retrieve a conversion equation to convert lactate values in FBS measured with LP2 to an estimated value if using LP1 and to define reference values for clinical management when using LP2.

STUDY DESIGN: A cross-sectional study was conducted at a university hospital in Sweden. A total of 113 laboring women with fetal heart rate abnormalities on cardiotocography (CTG) had FBS carried out. Lactate concentration was measured bedside with both LP1 and LP2 from the same blood sample capillary. A linear regression model was constructed to retrieve a conversion equation to convert LP2 values to LP1 values.

RESULTS: LP2 measured higher values than LP1 in all analyses. We found that 4.2 mmol/L with LP1 corresponded to 6.4 mmol/L with LP2. Likewise, 4.8 mmol/L with LP1 corresponded to 7.3 mmol/L with LP2. The correlation between the analyses was excellent (Spearman's rank correlation, $r=0.97$).

CONCLUSION: We recommend the following guidelines when interpreting lactate concentration in FBS with LP2: <6.4 mmol/L to be interpreted as normal, 6.4-7.3 mmol/L as preacidemia indicating a follow-up FBS within 20-30 min, and >7.3 mmol/L as acidemia indicating intervention.