

# The effectiveness of fetal Lactate measurement in the assessment of fetal acidaemia using StatStrip Lactate® meter

## Introduction

Fetal lactate measurement has been shown to be effective, with similar predictive properties to pH in the assessment and identification of fetal hypoxia. Fetal lactate is widely used in northern Europe, New Zealand and USA to assess fetal acidaemia. It has been endorsed by NICE since December 2014 (NICE Guidelines CG190, “Intrapartum care: care of healthy women and their babies during childbirth”). StatStrip Lactate® is a rapid handheld POC meter for the measurement of whole blood lactate level providing results within 13 seconds of testing thus enabling early identification of hyperlactatemia and baby at risk of hypoxia. The aim of our study is to assess the practicality and clinical reliability of fetal lactate using StatStrip Lactate® meter, comparing the results with more traditional fetal pH assessment of intrapartum fetal distress (hypoxia). Our study was carried out at City Hospital, Birmingham UK, a busy district general Hospital.

## Material and Methods

We carried out the study over 12-week period from May to July 2012 and included 48 women who were admitted in labour. All patients were consented by the on-call doctor. The inclusion criteria were gestation above 36 weeks, age above 16 years, singleton pregnancy and cephalic presentation. 1-2 drops of blood left over following fetal blood pH sampling or cord pH was additionally tested for lactate levels using the StatStrip Meter and the result compared with the fetal blood sampling result. All patients were managed according to RCOG and local guidelines. Data was collected on demographic, obstetric histories, Scalp and cord pH result, lactate level, mode of delivery and fetal outcome

## Results

Our study group included (n=25) primgravidas and (n=23) multiparas. 65% (n=31) had spontaneous onset of labour and induction of labour was carried out in 35 % (n=12) patients. Augmentation of labour was needed in 31% (n=15) patients. 42 % (n=20) required delivery by emergency caesarean section while 44% (n=21) had instrumental delivery. Overall 25 % (n=12) babies required NNU admission of whom 17% (n=8) were delivered by emergency caesarean section, majority of which was indicated by an abnormal FBS result.. Metabolic acidaemia was noted in 17 % (n=8) and high lactate was noted in 27% (n=13) of study group. In babies with borderline pH but lactate above 4.8mmol/l the risk of NNU admission was 99%.

## Conclusion

StatStrip Lactate® POC meter is an effective tool to rapidly assess and identify baby at risk of intrapartum hypoxia. Our study confirmed previously reported good correlation between pH and lactate levels in both FBS and cord blood in assessment of fetal acidaemia. StatStrip Lactate® meter has the added advantage of handheld POC meter which can be performed by the bedside with only 0.6µl of blood, significantly lower sampling failure rate and shorter time to perform

Fetal lactate measurement appeared to be a more sensitive indicator of fetal acidaemia and risk of NNU admission compared to pH measurement.

There is sufficient evidence to support the use of fetal lactate POC meter in clinical practice in UK to improve patient care and neonatal outcome.