Taylor & Francis
Taylor & Francis Group

The Journal of Obstetrics and Gynaecology

Journal of Obstetrics and Gynaecology

ISSN: 0144-3615 (Print) 1364-6893 (Online) Journal homepage: informahealthcare.com/journals/ijog20

The unresolved role of cardiotocography (CTG), fetal ECG (STAN) and intrapartum fetal pulse oximetry (IFPO) as diagnostic methods for fetal hypoxia

S. L. Sholapurkar

To cite this article: S. L. Sholapurkar (2014) The unresolved role of cardiotocography (CTG), fetal ECG (STAN) and intrapartum fetal pulse oximetry (IFPO) as diagnostic methods for fetal hypoxia, Journal of Obstetrics and Gynaecology, 34:8, 757-757, DOI: 10.3109/01443615.2014.920797

To link to this article: https://doi.org/10.3109/01443615.2014.920797

Journal of Obstetrics and Gynaecology, November 2014; 34: 757

ISSN 0144-3615 print/ISSN 1364-6893 online

informa
healthcare

LETTER TO THE EDITOR

The unresolved role of cardiotocography (CTG), fetal ECG (STAN) and intrapartum fetal pulse oximetry (IFPO) as diagnostic methods for fetal hypoxia

S. L. Sholapurkar

Department of Obstetrics and Gynaecology, Royal United Hospital, Bath, UK

Dear Sir,

The Cochrane database reviews by Neilson (2013) and East et al. (2007) concluded that currently, the fetal ECG and IFPO do not significantly improve the diagnosis of fetal acidaemia. Dokus et al. (2013) present a good and interesting retrospective study. It is quite remarkable that they actually discontinued using IFPO and fetal ECG after 2005 in a regional centre because of the safety concerns in their experience (corroborated by others). They demonstrate relatively well the observation that fetal acidaemia at birth ($pH < 7.15$) dropped significantly with visual CTG interpretation alone after 2005. On the negative side, they state that the caesarean section (CS) rate increased significantly during 2006–2010 compared with 2001–2005, acknowledging multifactorial causation, including the general rising CS trend over that decade. They get around this by invoking comparison with the health statistics data of the Slovak Republic reportedly showing a non-significant ($p = 0.083$) rise in CS over the same period. A 7.6% rise in CS rate (from 22.3% to 29.9%) in 13,413 deliveries in their study is highly significant ($p < 0.0001$); however it is perplexing that a 6.6% rise in CS rate (from 18.8% to 25.4% – presumably average figures for the two 5-year study periods?) in 520,000 births in Slovakia is not significant. Our calculation with a simplistic estimate of 50% births (260,000) before and 50% after 2005, showed the rise in CS to be very highly significant ($p < 0.0001$ by χ^2-test). Dokus et al (2013) may have some explanation for this which is not apparent or clear in their paper. Most importantly, the difference between the increments in CS rates of the study and the Slovak population represents the increase attributable to the switch-over to visual CTG interpretation alone. This increase seems minor and insignificant (but of course with a significantly improved detection of fetal acidaemia in their study).

The paper reiterates a common desire for a more accurate and automated diagnostic tool for fetal hypoxaemia in labour. Despite exponential advances in computer technology, the computer-aided CTG interpretation has not fulfilled its promise over more than two decades. The fault may not primarily rest with the adjunctive techniques (STAN, IFPO or computerised analysis) because these are informed and influenced by the CTG analysis. Instead, the main obstacle may be any significant deficiencies in the current CTG visual interpretation, especially the possible unphysiological categorisation of decelerations, which has a major impact (Sholapurkar 2013a–c). Thus, a continued quest for a more meaningful CTG interpretation may be crucial if progress in adjunctive technologies is to be achieved and indeed measured and compared.

Declaration of interest: The author reports no conflicts of interest. The author alone is responsible for the content and writing of the paper.

References

East CE, Chan FY, Colditz PB, Begg LM. 2007. Fetal pulse oximetry for fetal assessment in labour. Cochrane Database of Systematic Reviews (18):CD004075.

Dokus K, Zubor P, Matasova K, Visnovsky J, Danko J. 2013. Impact of fetal pulse oximetry and ST analysis surveillance withdrawal on rates of obstetric surgery and frequency of low birth umbilical artery pH: a cause of rising caesarean rates? Journal of Obstetrics and Gynaecology 33:685–688.

Neilson JP. 2013. Fetal electrocardiogram (ECG) for fetal monitoring during labour. Cochrane Database of Systematic Reviews (5):CD000116.

Sholapurkar SL. 2013a. Critical evaluation of American categorization of fetal heart rate (FHR) decelerations and three tier classification – shortcomings, contradictions, remedies and need for debate. Open Journal of Obstetrics and Gynecology 3:362–370. Available at: www.scirp.org/journal/ojog (open access).

Sholapurkar SL. 2013b. Interpretation of British experts' illustrations of fetal heart rate (FHR) decelerations by Consultant Obstetricians, Registrars and midwives: A prospective observational study. Reasons for major disagreement with experts and implications for clinical practice. Open Journal of Obstetrics and Gynecology 3:454–465. Available at: www.scirp.org/journal/ojog (open access).

Sholapurkar SL. 2013c. Are 'early' and 'late' fetal heart rate decelerations extinct? A survey of British midwives and analysis of controversies, facts and fiction. British Journal of Midwifery 21:710–715.

Correspondence: S. L. Sholapurkar, Department of Obstetrics and Gynaecology, Royal United Hospital, Combe Park, Bath BA1 3NG, UK. E-mail: s.sholapurkar@nhs.net

DOI: 10.3109/01443615.2014.920797