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Impact of the introduction of central fetal monitoring with computerised analysis and real-time alerts on the rates of caesarean section and adverse neonatal outcome

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Introduction: Central monitoring stations allow a wider vigilance of labouring women, but it is possible that they may also lead to higher rates of obstetric intervention, due to a greater importance given to fetal heart rate changes.

Objectives: To evaluate the impact of the introduction of central fetal monitoring with computerised analysis and real-time alerts in the labour of a tertiary care university hospital, on the rates of caesarean section and adverse neonatal outcomes.

Methods: Retrospective quantification of the number of deliveries, overall caesarean section rate, intrapartum caesarean section rate for non-reassuring fetal state (NRFS), and newborn with the diagnosis of hypoxic ischemic encephalopathy (HIE) of probable intrapartum origin, that occurred between January 2001 and December 2008, having central monitoring been introduced in the second half of 2003.

Results: In the period 2001-2003 8791 deliveries occurred, the overall caesarean section rate was 30.2% (95%CI=29.0-31.1), while between 2004-2008 13191 occurred and the overall caesarean rate was 29.3% (95%CI=28.2-29.8). In 2001-2003 the caesarean section rate for NTFS were 18.3% (95%CI=16.5-19.5), in 2004-2008 it was significantly lower at 14.4% (95%CI=12.9-15.1). The mean number of yearly cases of HIE per 1000 deliveries was 5.9% (95%CI=3.7-4.3) in 2001-2003 and 2.5% (95%CI=1.2-4.6) in 2004-2008.

Conclusions: The introduction of centralised fetal monitoring with computerised analysis and real-time alerts, in the labour ward of a tertiary care hospital was associated with a significant reduction in caesarean section rates due to NRFS and yearly rates of HIE. However, it is not possible to guarantee a causal relation between these events, as other phenomena occurred during this period, which could have also contributed to the decrease incidence of these outcomes.