

Eur J Obstet Gynecol Reprod Biol. 2004 Sep 10;116(1):22-7.

The quality of intrapartum fetal heart rate monitoring.

[Bakker PC](#), [Colenbrander GJ](#), [Verstraeten AA](#), [Van Geijn HP](#).

Department of Obstetrics and Gynecology, Vrije Universiteit Medical Center, Mailbox 7057, 1007 MB Amsterdam, The Netherlands.

OBJECTIVE: To determine the quality of fetal heart rate (FHR) recordings during the first and second stage of labor by quantifying the amount of fetal signal loss in relation to the method of monitoring: external ultrasound or directly via a scalp electrode.

STUDY DESIGN: Analysis of 239 intrapartum recordings stored between 1 January 2001 and 1 July 2001 from consecutive deliveries at the Vrije Universiteit Medical Center in Amsterdam. Singletons delivered via the vaginal route were included in the study. FHR recordings had duration of at least 1h prior to birth of the infant. Subdivision in three groups took place on the basis of the recording technique which had been used; i.e. ultrasound, scalp electrode or a combination of both methods. FHR data was obtained using HP-M1350 cardiotocographs. The status (pen on, pen off, maternal signal) and the mode of the signals were acquired. The duration of pen lifts and maternal signals was divided by the total duration of the recording. Statistical analyses were performed with the Mann-Whitney U-test and the Wilcoxon signed ranks test.

RESULTS: Recordings obtained via ultrasound demonstrated significantly more fetal signal loss than those obtained via the direct mode, particularly in the second stage. The FIGO criteria for fetal signal loss with external ultrasound were not fulfilled during this stage for about half the cases.

CONCLUSION: Intrapartum FHR monitoring via a scalp electrode provides far better quality FHR signals than external ultrasound and deserves a more prominent position in fetal surveillance than it currently has.