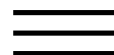


A comparison of visual analyses of intrapartum fetal heart rate tracings according to the new National Institute of Child Health and Human Development guidelines.

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A comparison of visual analyses of intrapartum fetal heart rate tracings according to the new National Institute of Child Health and Human Development guidelines with computer analyses by an automated fetal heart rate monitoring system [â~† â~†â~†](#)

Presented at the Sixty-second Annual Meeting of The South Atlantic Association of Obstetricians and Gynecologists, St Petersburg, Florida, January 22-25, 2000.

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Abstract

Objectives: The aim of this study was to compare the visual analyses of fetal heart rate tracings by observers according to recent National Institute of Child Health and

Human Development interpretative guidelines both with each other and with those of a computerized fetal heart rate analysis and alerting system. **Study Design:** One-hour sections of intrapartum fetal heart rate records were analyzed by a computerized monitoring system (Hewlett-Packard TraceVue; HP GmbH, Böblingen, Germany) and by 4 observers (a registered obstetric nurse, a certified nurse-midwife, an obstetrics resident physician, and a physician maternal-fetal medicine faculty member) instructed to use the new National Institute of Child Health and Human Development guidelines. We compared specific alerts, baseline rates, frequencies of accelerations and decelerations, and signal quality assessments generated by the TraceVue system and the observers. Power analysis indicated that 50 tracings were required to detect interobserver and observer-computer agreement levels of $80\% \pm 10\%$. Statistical comparisons used κ coefficient, χ^2 test, and analysis of variance with repeated measures as appropriate. **Results:** Levels of agreement between observer pairs and the computer did not vary significantly across successive 10-minute intervals. Overall levels of interobserver agreement for baseline rate, tracing quality assessment, frequencies of accelerations and decelerations, and alerts ranged from 45% to 99% and were highest for baseline rate and signal loss and lowest for acceleration and deceleration counts. Interobserver agreement for alerts was relatively high (range, 72%-84%), with virtually no difference between any of the observers and the computer (range, 76.9%-79.2%; $\kappa = 0.25$). **Conclusion:** Use of the National Institute of Child Health and Human Development guidelines for visual fetal heart rate interpretation did not increase agreements on most fetal heart rate features beyond those expected by chance or noted in previous reports. These guidelines did appear to blunt some interpretive differences, possibly as a result of observer background. Although levels of agreement on fetal heart rate features differed, agreements on clinical alerts were similar among all observers and a computerized fetal heart rate monitoring system. Computer analysis of fetal heart rate tracings could eliminate interobserver variation that results from visual analysis and could produce more consistent clinical responses to normal and abnormal fetal heart rate patterns. (Am J Obstet Gynecol 2000;183:361-6.)



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Keywords

Computerized fetal heart rate analysis; intrapartum monitoring; visual assessment

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