

Comparing Clark's 2017 category II electronic fetal monitoring (EFM) algorithm to actual management when umbilical cord arterial Ph was less than 7

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Abstract

INTRODUCTION: Our previously published study reported that in only 47 percent of labors resulting in a baby with severe acidemia (defined as umbilical cord arterial pH less than 7) intrapartum EFM was interpreted as concerning, with delivery expedited. We compared Clark's EFM Category II algorithm (AJOG 2017) to EFM interpretation and actual management of these deliveries.

METHODS: IRB approval was obtained. A retrospective cohort study was performed on deliveries with umbilical cord arterial pH less than 7. Two groups were identified in actual management: (1) expedited delivery (urgent/emergent operative vaginal delivery or cesarean section) and (2) non-expedited delivery. We then reviewed all FHTs to determine if the algorithm would have recommended expedited delivery or not. Data was analyzed using Chi-squared test for independence and Fisher's Exact Test.

RESULTS: 30 deliveries were identified with severe fetal acidemia. 47 percent were delivered in expedited fashion. The Clark algorithm recommended expedited delivery in 30 percent. The algorithm was not applicable to 3 out of 30 deliveries. Of actually expedited deliveries, the algorithm agreed with expediting 75 percent of the time, 78 percent of which should have been delivered even earlier. Of actually non-expedited deliveries, the algorithm would have only expedited 7 percent of those.

CONCLUSION: The Clark 2017 Category II FHT algorithm had a lower sensitivity for predicting severe fetal acidemia and recommending expedited delivery. Although only 47 percent of babies with severe acidemia were delivered in expedited fashion, the Clark algorithm would only have expedited delivery in 30 percent overall.