Title: Does the use of earplug-aided tocodynamometers improve labor outcomes?

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Abstract: Increasing body mass index in laboring mothers can pose a unique challenge for accurately monitoring uterine contractions. Due to the larger body habitus, the tocodynamometer will at times not reliably record contractions due to the increased distance between the device and the uterus. This often necessitates the need for an intrauterine pressure catheter (IUPC), which in turn can lead to complications such as chorioamnionitis. Anecdotal evidence exists that suggests placing a foam earplug between the tocodynamometer and the laboring mother allows for more accurate contraction detection and reduces the need for IUPC placement; however, little to no research has been conducted to evaluate this theory. Since earplugs are both cost-effective and non-invasive, the goal of this study was to see if earplug placement under the tocodynamometer could increases contraction clarity and therefore reduce the need for intrauterine pressure catheters and perhaps ultimately affect labor outcomes in a positive way. 304 laboring mothers were randomly assigned to either receive or not receive an earplug beneath their tocodynamometer, and their BMI, subsequent IUPC placement (or lack thereof), and incidence of chorioamnionitis were recorded. The data was analyzed to evaluate whether, in fact, those women with an earplug had reduced rates of intrauterine pressure catheter placement or chorioamnionitis. Statistical analysis showed that there is a negligible relationship between earplug placement and the need for IUPC placement, regardless of BMI. Additionally, the number of patients with chorioamnionitis was not sufficient enough to make a statistically significant conclusion.