

Full Title:

Misoprostol Sleepover Camp - A Review of the Vicious Cycle Created by Holding Doses of Prostaglandins During Induction

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Cover Letter: Thank You for considering this short paper. All authors agree to submission and this manuscript is not currently under consideration anywhere else. This manuscript has never been published, although parts of the manuscript have appeared on our institute webpage previously as part of our on-going research. (Marchandinstitute.org). I hope you will find this paper interesting and have a place for it in your journal. Please let me know if a different article type would be more acceptable to your journal.

Data Declaration: The authors declare that data supporting the findings of this study are available within the article (and its supplementary files).

Shortened Running Title: Misoprostol Sleepover Camp

Plane Language Summary:

Induction of labor using prostaglandins is a common and effective strategy for induction of labor. In order to improve safety associated with the administration of prostaglandins, health systems have developed protocols dictating when subsequent doses of prostaglandins must be held. Ideally, these criteria would prevent the administration of prostaglandins when they were likely to cause hyperstimulation. Unfortunately, these protocols are often "triggered" by uterine irritability what is not likely to contribute to hyperstimulation. This vicious cycle of prolonged hospitalization without medication administration to induce labor secondary to prostaglandins being held by hospital protocols has been coined "Misoprostol Sleepover Camp."

**Disclosure of interests:**

Authors have no interests to disclose

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**IRB Approval:**

Institute declared the research IRB exempt at the December 2017 meeting.

**Key Words:** LABOUR, INDUCTION, MISOPROSTOL, OXYTOCIN

**Abstract:**

**Background:** Induction of labor using prostaglandins is a common and effective strategy for induction of labor. In order to improve safety associated with the administration of prostaglandins, health systems have developed protocols dictating when subsequent doses of prostaglandins must be held. Ideally, these criteria would prevent the administration of prostaglandins when they were likely to cause hyperstimulation. Unfortunately, these protocols are often “triggered” by uterine irritability that is not likely to contribute to hyperstimulation. This vicious cycle of prolonged hospitalization without medication administration to induce labor secondary to prostaglandins being held by hospital protocols has been coined "Misoprostol Sleepover Camp.”

**Methods:** We performed searches of all relevant literature and Pubmed, Medline and Google scholar. All articles that published a protocol of misoprostol usage for induction of labor were considered and reviewed.

**Results:** Most published, described protocols for oral or vaginal misoprostol induction include parameters for holding doses, while very few of these protocols seem to take into consideration fetal status or maternal appreciation of the contractions. Most of the protocols reviewed out of simply used contractions in ten minutes as the absolute criteria for holding doses.

**Conclusion:** Initial review of the data seems to indicate that the described phenomenon seems inherent to the protocols described and unavoidable by obstetricians adhering to the protocols.

**Key Words:**

LABOUR: INDUCTION, EPIDEMIOLOGY: GENERAL OBSTETRIC

**MANUSCRIPT:**

**BACKGROUND:** Induction of labor using prostaglandins is a common and effective strategy for both elective and medically indicated induction of labor. In order to improve safety associated with the administration of prostaglandins, hospital systems and physician committees have developed protocols dictating when subsequent doses of prostaglandins may be given, in order to decrease the incidence of uterine hyperstimulation and subsequent morbidity.<sup>1</sup> Ideally, these criteria would prevent the administration of prostaglandins when they were likely to cause hyperstimulation, and allow the administration at other times. Unfortunately, secondary to the almost universal lack of internal monitoring during cervical ripening and early induction of labor, these protocols are often “triggered” by uterine irritability or a pattern of very weak contractions that were not likely to contribute to hyperstimulation.<sup>2</sup> This vicious circle of prolonged hospitalization without medication administration to induce labor secondary to medications being withheld by hospital protocols has been coined "Misoprostol Sleepover Camp" by obstetricians frustrated with the

phenomenon. The existence of this phenomenon is not without morbidity and mortality.<sup>3</sup> As the time required for an induction of labor increases, so does the incidence of diagnosing a failed induction, and with it the rate of iatrogenic cesarean section.<sup>4</sup> In addition, extra hospital days for the induction of labor increase health care costs, markedly decreasing the cost effectiveness of the care given.<sup>5,6</sup> We sought out to analyze some of the described protocols that have been published and to theorize strategies to overcome this phenomenon.

**Data Sources:** We performed searches of Pubmed.gov, ClinicalTrials.gov and Google.com which were utilized in December of 2018 to obtain published protocols that described the holding of doses of misoprostol based on number of contractions in a given time period.

**Methods:** Data was collected from all published sources that described a protocol that included holding or cancelling doses of misoprostol for any criteria as long as at least one of the criteria included an exact or subjective reference to the number of contractions in a given time period. Exclusion criteria included protocols from outside the United States, as well as protocols that did not publish the exact criteria used to hold doses. Data was collected from studies describing protocols without respect to the initial aim of the study. Six published protocols were identified and included.

**Results:** Most published, described protocols for oral or vaginal misoprostol induction include parameters for holding doses, while very few of these protocols seem to take into consideration fetal status or maternal appreciation of the contractions. Most of the protocols reviewed out of simply used contractions in ten minutes as the absolute criteria for holding doses.

**Conclusions:** Initial review of the data seems to indicate that the described phenomenon seems inherent to the protocols described and unavoidable by obstetricians adhering to the protocols. Consideration may be given for the inclusion of patient appreciation of contractions and fetal response to the contractions prior to the cancellation or delay of induction medications.

**Declarations:**

Ethics approval and consent to participate: Institute declared the research IRB exempt at the December 2017 meeting.

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