Maine Medical PARTNERS Women's Health

A department of Maine Medical Center

Misoprostol Cervical Ripening

Cervical ripening is a physiologic process which arises through biochemical and functional changes resulting in softening, effacement and dilation of the cervix.[1] Misoprostol (Cytotec) is a synthetic PGE_1, analogue that has been used to affect cervical ripening. Oral, intravaginal and sublingual administration of misoprostol has been described for cervical ripening.

Prostaglandin administration solely for the purpose of induction of labor has been described though the safety, optimal route, frequency and dose have not been established.[2,3] However, the distinction between formal induction and cervical ripening has not always been clearly defined in trials.

There is no evidence of any teratogenic, carcinogenic or long-term adverse health consequences to the fetus exposed to intrapartum prostaglandins.[4]

Indications:

- Cervical ripening

Contraindications:

- Prior major uterine surgery
- Indeterminate or category III fetal heart rate tracing
- Hypersensitivity to medication class
- Uterine tachysystole
- Any contra-indication to a vaginal delivery or spontaneous labor
- Previous cesarean delivery

Caution Advised:

- Maternal cardiovascular disease
- Maternal renal impairment
- Fetal growth restriction
- Oligohydramnios
- Multiple gestations
- Grand multiparity

Side Effects:

- Diarrhea/Abdominal pain (~10%)
- Headache (1-10%)
- Fever (<1%)
- Chills (<1%)
- Vomiting (<1%)

Adverse Reaction:

- Uterine tachysystole with or without fetal heart rate changes (unknown)
- Uterine rupture (unknown)

Adminstration:

1. Obtain reassuring non-stress test prior to administration.
2. Misoprostol (100 µg size) to be cut in quarters and 25 µg to be inserted in the posterior vaginal fornix, as initial dose. Higher doses (e.g. 50 µg) may be appropriate given certain clinical situations. However, there may be an increased risk of tachsystole with fetal heart rate changes and uterine rupture.
3. Subsequent doses to be placed at 3-6-hour intervals.
4. Oxytocin should not be administered less then 4 hours from last dose.
5. Patient to be continuously monitored both for uterine contractions and fetal heart rate for 4 to 6 hours.

References:

1. Maul H, Mackay L, Garfield RE. Cervical ripening: biochemical, molecular, and clinical considerations. Clin Obstet Gynecol. 2006;49(3):551-63.

2. Keirse MJ. Natural prostaglandins for induction of labor and preinduction cervical ripening. Clin Obstet Gynecol. 2006 Sep;49(3):609-26.

3. Wing DA, Fassett MJ, Guberman C, Tran S, Parrish A, Guinn D. A comparison of orally administered misoprostol to intravenous oxytocin for labor induction in women with favorable cervical examinations. Am J Obstet Gynecol. 2004;190(6):1689-94.

4. ACOG Practice Bulletin No. 107. Induction of Labor. Obstet Gynecol 2009;114:386-97.

5. Mundle WR, Young DC, Vaginal Misoprostol for Induction of Labor: A randomized Controlled Stud. Obstet Gynecol 1996;88:521-5

6. Buser D, Mora G, Arias F. A Randomized Comparison Between Misoprostol and Dinoprostone for Cervical Ripening and Labor Induction in Patients with Unfavorable Cervices. Obstet Gynecol 1997;89:581-5.

7. Wing DA, Rahall A, Jones MM, Goodwin TM, Paul HR. Misoprostol: An effective agent for cervical ripening and labor induction. Am J Obstet Gynecol 1995;172:1811-16.

8. Kramer RL, Gilson GJ, Morrision DS, Martin D, Gonzales JL, Qualls CR. A Randomized Trial of Misoprostol and Oxytocin for Induction of Labor: Safety and Efficacy. Obstet Gynecol 1997;89:387-91.