# A COMPARISON OF ORALLY ADMINISTERED MISOPROSTOL WITH VAGINALLY ADMINISTERED MISOPROSTOL FOR CERVICAL RIPENING AND LABOR INDUCTION

Thesis

*Submitted for fulfillment of Master Degree in Obstetrics and Gynecology*

By

HANY SAAD AMIN MOHAMED

*Resident of Obstetrics and Gynecology*

*Faculty of Medicicine-Cairo University*

**Supervised by**

**POF. DR. MAHER MOHAMED ABDEL WAHAB**

*Professor of Obstetrics & Gynecology*

*Faculty of Medicine-Cairo University*

**PROF. DR. ASHRAF ABDEL RAHMAN RAMADAN**

*Professor of Obstetrics & Gynecology*

*Faculty of Medicine-Cairo University*

**DR. AHMED MOHAMED ABDEL HAKE**

*Lecturer of Obstetrics & Gynecology*

*Faculty of Medicine-Cairo University*

Fuculty of Medicine

Cairo University

2008

# Abstract

**Objectives:** Our purpose was to compare orally administered with vaginally administered misoprostol for cervical ripening and labor induction.

**Patients and Methods:** 40 subjects with medical or obstetrical indications for labor induction and undilated, uneffaced cervices were randomly assigned to receive orally administered or vaginally administered misoprostol. 50ug of oral misoprostol or 25ug of vaginal misoprostol was given every 4 hrs. If cervical ripening( Bishop score of ≥ 8 or cervical dilatation of ≥ 3cm) or active labor didn't occur, repeated doses were given to a maximum of 6 doses or 24 hrs.Thereafte, oxytocin was administered intravenously by a standardized incremental infusion protocol to a maximum of 22mU/min.

**Results:** of the 40 subjects evaluated, 20 received orally administered misoprostol and 20 subjects received vaginally administered misoprostol. fewer orally treated subjects( 3 cases where 2 cases are multigravida and 1 case primigravida) were delivered in 24 hrs of the initiation of induction, in comparison with the vaginally treated group( 16 cases where 9 cases are multigravida and 7 cases are primigravida). The time from induction to delivery in the orally treated group was 35.5±12 hrs (mean and SD) in nulligravida, 23±13 hrs (mean and SD) in multigravida, while in the vaginally treated group was 21.5±14 hrs (mean and SD) in nulligravida, 19±10 hrs (mean and SD) in multigravida. the mean time interval between the induction to initiation of vaginal delivery between the orally treated group 28.9±13 hrs(mean and SD) while in the vaginally treated group 20±13 hrs(mean and SD). the induction to initiation of delivery (vaginal or abdominal) as 29±12 hrs(mean and SD) in the orally treated group, 21±12 hrs(mean and SD) in the vaginally treated group. the average number of doses of misoprostol used for induction as 3.3±1.7(mean and SD) in the orally treated group while 2.2±1.3(mean and SD) in the vaginally treated group ( P = 0.043). Oxytocin augmentation was used in 15 cases in the

orally treated and 12 cases in the vaginally treated group( P = 0.500). The number of cases delivered vaginally in the orally treated group 12 cases(60%) while in the vaginally treated group 19 cases(95%). The number of cases delivered by CS in the orally treated group were 8 cases while in the vaginally treated group were 1 case( P = 0.023). Chorioamnionitis occurred in 4 cases in oral group, 3 cases in the vaginal group. Uterine tachysystol occurred in 1 case in oral group, 2 cases in the vaginal group. Uterine hypertonus occurred in 1 case in the oral group while no cases reported in the vaginal group. Abnormal FHR pattern reported in 5 cases in the oral group, 6 cases in the vaginal group with no statistical difference between both groups. The neonatal outcome show no statistical difference between both groups.

**Conclusion:** Oral administration of 50ug of misoprostol appears less effective than vaginal administration of 25ug of misoprostol for cervical ripening and labor induction.

**Key words:** Misoprostol, cervical ripening, labor induction.

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| FHR | Fetal heart rate |
| GAG | Glucosaminoglycan |
| IL-6 | Interleukin-6 |
| IUFD | Intrauterine fetal death |
| IUGR | Intrauterine growth retardation |
| Min | Minutes |
| hrs | Hours |
| NO | Nitric Oxide |
| PGE2 | Prostaglandin E2(Dinoproston) |
| PGF2α | Prostaglandin F2α |
| $PGI_2$ | Prostacyclin |
| RU486 | Mifepristone |
| U.S | United states |

# Acknowledgment

**I** wish to express my deepest and profound thanks to **Prof. Dr. Maher Abdel Wahab,** Professor of Obstetrics and Gynecology, Kasr Al-Aini Hospital, Cairo University, for giving me honor and great privilege of working under his kind supervision, for his continuous encouragement and his fatherly guidance.

**I** would like to express my endless appreciation to **Prof. Dr. Ashraf Abdel Rahman Rmadan,** Proffessor of Obstetrics and Gynecology, Kasr Al-Aini Hospital, Cairo University, for his enthusiasm, criticism, continuous support and interest in his work
.

**S**pecial words of thanks are due to **Dr. Ahmed abdel Hake,** Lecturer of Obstetrics and Gynecology, Kasr Al-Aini Hospital, Cairo University, for his great help and support. His participation as well as his encouragement.

# Introduction

There are many indications for term labor inductions, including postterm pregnancy, preeclampsia,diabetes mellitus, oligohydraminos, IUFD, IUGR, abnormal antepartum fetal surveillance results. The immature cervix is the greatest barrier to labor induction. Because oxytocin only affect only the uterine contractions and not the cervical ripening, prostaglandin agents are the first choice for labor induction because they exert a local effect on the cervix, causing effacement and dilatation, and stimulate myometrial contractions, increasing the likelihood of success. Dinoprostone has been the agent of choice of preinduction cervical ripening for several decades and is currently one of the pharmacological agents approved by the U.S Food and Drug administration for this indication. Although widely used, it has two disadvantages: It is expensive, and it require continuous refrigeration .Thus, there is a need for less costly and less temperature-sensitive alternatives. Misorpostol, a synthetic PGE1 analogue, has been proposed as an alternative agent for the preinduction of cervical ripening. Misoprostol was initially used for treatment of peptic ulcer caused by prostaglandin synthetase inhibitors, and was approved by the U.S. Food and Drug Administration for Obstetric use in April 2002.

Although the oral dose of 100 ug was previously advocated as preferred dose by ***wing et al,*** more recent reports by ***Cochrane*** review, other review, and forthcoming WHO recommendation have identified 50 ug as the highest dose that should be used. The recommended dose by vaginal route is 25 ug every 4 hrs. however, excessive uterine contractility resulting in fetal distress is a cause for concern. Comparing the oral and vaginal administration of misoprostol, the oral administration is easier and has greater acceptability among women, convenience and lack of invasiveness. Fewer cervical examinations could also reduce the peripartum infection rates. Further, absorption is more rapid and possibly more predictable, with peak serum

concentration after oral administration of 34 min and a half life of 10-40 min. Peak serum concentration for vaginal administration is 60-80 min, and this level is sustained for up to 4 hrs. Oral administration, if proved safe and effective, could potentially reduce overall hospitalization time by permitting administration of the medication in an outpatient setting. Although the direct local effect of vaginal administration on cervical ripening may be advantageous, the shorter half life of oral delivery may be beneficial in the event of uterine hyperstimulation .

# Aim of work

A comparison of orally administered Misoprostol with vaginally administered Misoprostol for cervical ripening & induction of labor.

# Review Of Literature