

Comparison of Oral Misoprostol for Induction of Labour in Primigravidas and Multigravidas

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ABSTRACT

Objective: To compare the efficacy of oral misoprostol in primigravidas and multigravidas for induction of labour.

Study design: comparative study

Place and duration of study: Study was conducted at Gynae Department of Combined Military Hospital Tarbela for a period of one year from April 2010-April 2011.

Materials and methods: Convenience sample of 100 pregnant women with singleton pregnancy, age group 22-35 years was taken. Primigravidas were labeled as group1 and multigravidas were labeled as group 2 Basic investigations and ultrasound for gestational age, amount of liquor was done. Bishop score was assessed prior to induction of labour. Inclusion and exclusion criteria were made for the participants in the study group. Participants in the study include primigravida and multigravida upto parity 4 was taken as inclusion criteria. Parity above 4 and previous scarred uterus cases were excluded.

Results: Patients were divided in two groups including 50 in each one. Group 1 was primigravidas and Group 2 was multigravidas. Majority of the women in both groups were 22 to 35 years of age (72%) (Table 1). In group 1 86% had spontaneous vaginal delivery and 14% had lower segment caesarean section. In group 2 92% had spontaneous vaginal delivery and 8% had LSCS. Failed progress of labour, fetal distress and meconium stained liquor in both study group were indications for LSCS. The doses of misoprostol required in group1 were 3-4 doses and duration of labour was more than 18 hours in 24% of cases. While in group 2 90% of patients require only 2 doses and induction delivery interval was less than 18 hours in 50% of cases and more than 18 hours in 6% of cases. There was no case of uterine rupture, chorioamnionitis and puerperal sepsis.

Conclusion: Oral misoprostol is found to be effective in induction of labour for different indications.

Keywords: Misoprostol (PGE1), induction of labour, bishop score, Favorable and unfavorable bishopscore, lower segment caesarean section LSCS,SVD

INTRODUCTION

Labour induction is initiation of labour event prior to spontaneous onset of labour¹. It is one of the most frequent medical .procedures in pregnant women. Labour induction may successfully end up in normal course of labour and vaginal delivery or it may end up in surgical intervention like caesarean section². The decision for induction of labour includes a number of factors. These can be maternal or fetal causes. Maternal causes include postdated pregnancy and medical conditions which are caused or aggravated by pregnancy. These include preeclampsia, placental abruption, respiratory, hepatic or cardiac disorder³.

Other essential medical indication can be cervical cancer and termination of pregnancy after intra uterine death. Fetal causes for induction of labour are intrauterine growth retardation and to reduce intrauterine death from complications as

diabetes, prolonged pregnancy, amnionitis, prelabour rupture of membrane and rhesus immunization^{4,5}. The purpose of induction of labour is to achieve benefits to the health of mother and baby, rather than continuing the pregnancy. These include surgical, mechanical and pharmacological agents. Various methods for induction of labour are amnionotomy, extra amniotic Foleys catheter, extra saline infusion, membrane sweeping and syntocinon infusion^{6,7}. Prostaglandins are used for induction of labour with unripe cervix[8;9].Prostaglandin E2 is widely recognized and it is used vaginally for induction of labour¹⁰. Misoprostol PGE1 can be given vaginally or orally for induction of labour¹¹. Sanchez-Ramos L, Kauntiz A M et al in a meta analysis of induction of labour with oral misoprostol found it to be effective and few caesarean sections¹².

MATERIALS AND METHODS

The comparative study was conducted at Gynae Department Combined Military Hospital Tarbela in

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year from April 2010 April 2011 .The control group was not taken and study group consisted of 100 pregnant patients with singleton pregnancy. All patients were admitted through gynae OPD. Basic investigations and ultrasound for gestational age and amount of liquor was done .Bishop score [assessment of cervical length, position, consistency, and station of fetal head] was assessed prior to induction of labour. Exclusion criteria include patients with history of previous caesarean section or any other uterine surgery and patients with parity 4 and those who did not give consent. Participants in the study group include primigravida and multigravida upto parity 4. They were either at term or post dated and was planned for some medical or obstetric reasons. Various indications for induction of labour was post dated pregnancy, prelabour rupture of membranes, pregnancy induced hypertensions, scanty liquor and cholestasis of pregnancy. The dose of misoprostol 25 microgram was given every 6 hourly; maximum 4 doses were given depending on maternal and fetal condition. The study denominators assessed in both groups were dose of misoprostol required in both groups, induction to delivery interval in hours and outcome of induction of labour that is spontaneous vaginal delivery or failure of induction ending in LSCS. Complications were assessed in both groups.

RESULTS

There were total 100 patients in the study group. Group 1 comprises 50 patients (primigravida) and Group 2 comprises 50 patients(multigravida). Most Patients in study group were in age group from 22-35 years(72%) as shown in table 1.In Group 1 38 patients (76%) were at term and 12 patients (24%) were post dated . In Group 1, 32% of patients with prelabour rupture of membranes, 36% of patients with pregnancy induced hypertension, 6% of patient with scantyliquor and decreased fetal movements were give misoprostol for induction of labour. Various indications and number of patients in study group 2(multigravidas) are prelabour rupture of membrane (20%), pregnancy induced hypertension (16%) and scanty liquor (8%). In group 2, 54% of patients were at term and 46% of patients were postdated. The number of misoprostol doses (25 microgram) required for group 1 were 3 doses in 56% of patients (28) two doses in 30% and 4 doses in misoprostol in 14% of patients. While in group 2 (multigravidas) 3 doses in 22% of patients, 2 doses in 46% of patients and 10% required 4 doses details in figure 1. The mean duration of labour in both groups were compared. There was significant difference between duration of labour in both groups. Mean induction--

delivery interval was more than 18 hours in group 1(24%) and it was less than 18 hours in group 2(6%).The next denominator assessed was outcome of induction of labour. In group 1, 78% had spontaneous vaginal delivery and `18% underwent LSCS. One patient had forcep delivery and one patient had vacuum delivery. In group 2 86% patients had spontaneous vaginal delivery and 8% underwent LSCS.2 patients had outlet forcep delivery and one patient had vacuum delivery. Complications of induction of labour with misoprostol in either group were assessed. In group one 2% of patients had uterine hyper stimulation 8% meconium staining of liquor and 10% had failed progress of labour. In group 2, 6% had uterine hyper stimulation,2% had meconium staining of liquor and 2 patients ended up in forceps delivery and 1 patient had vacuum delivery because of fetal bradycardia.

Table I: Age group of patients

| Age group | n= |
|--------------------|----|
| 20-24 years | 21 |
| 25-35 years | 72 |
| More than 35 years | 07 |

Figure I: Doses of misoprostol in group I

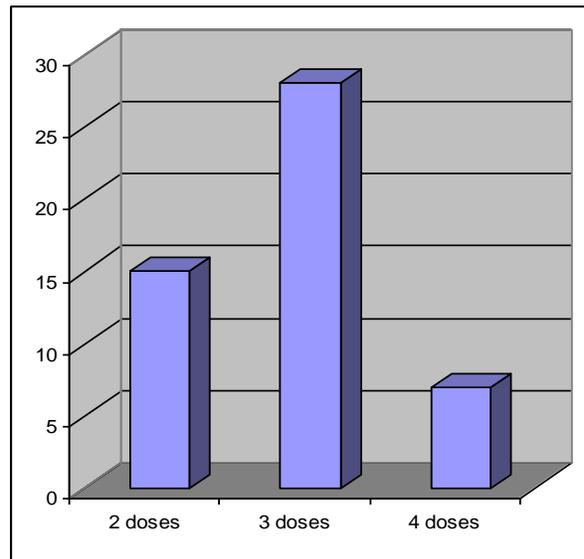


Table II: Indications for induction of labour

| Indication | Group 1 (n=50) | Group 2 (n=50) |
|--------------------------------|----------------|----------------|
| Postdated pregnancy | 12(24%) | 23(46%) |
| Prelabour rupture of membranes | 16(32%) | 10(20%) |
| Pregnancy induced hypertension | 14(28%) | 08(16%) |
| Scanty liquor | 03(6%) | 04(8%) |
| Cholestasis of pregnancy | 02(4%) | 01(2%) |
| Decreased fetal movement | 03(6%) | 04(2%) |

Table III: Outcome of induction of labour in the study group

| Mode of delivery | Group I | Group II |
|------------------|---------|----------|
| SVD | 39(78%) | 43(86%) |
| LSCS | 9(18%) | 4(8%) |
| Forcep delivery | 1(2%) | 2(4%) |
| Vacuum delivery | 1(2%) | 1(2%) |

Fig. II: Doses of misoprostol in group II (n=50)

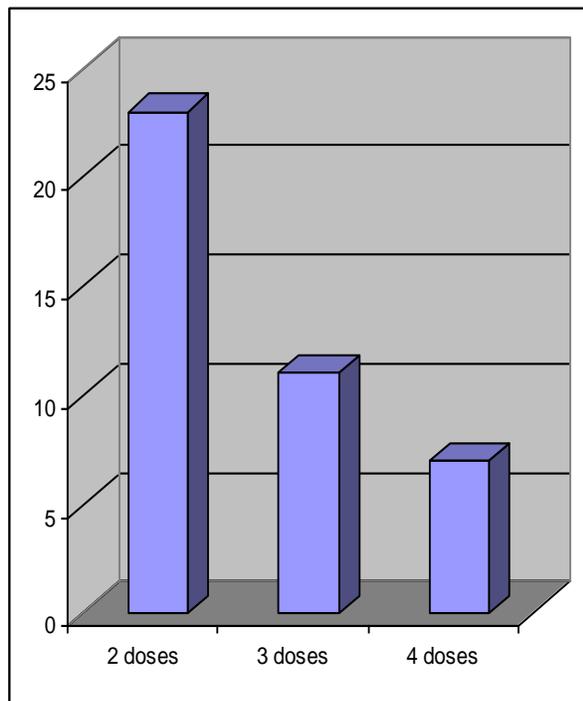


Fig. III: Induction-delivery interval in group I

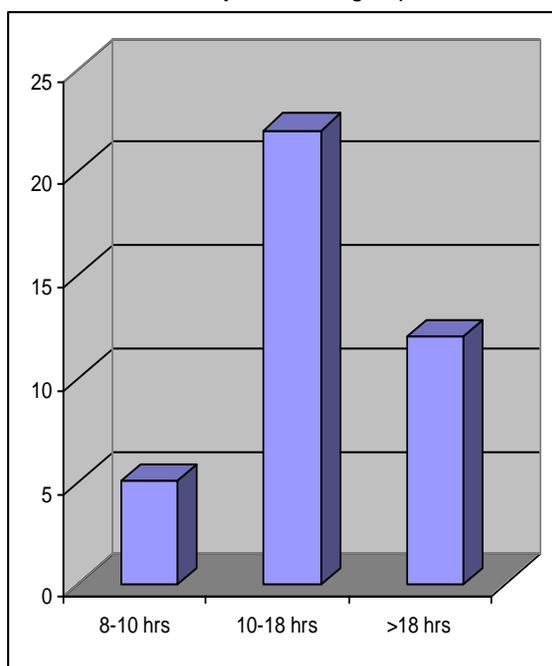
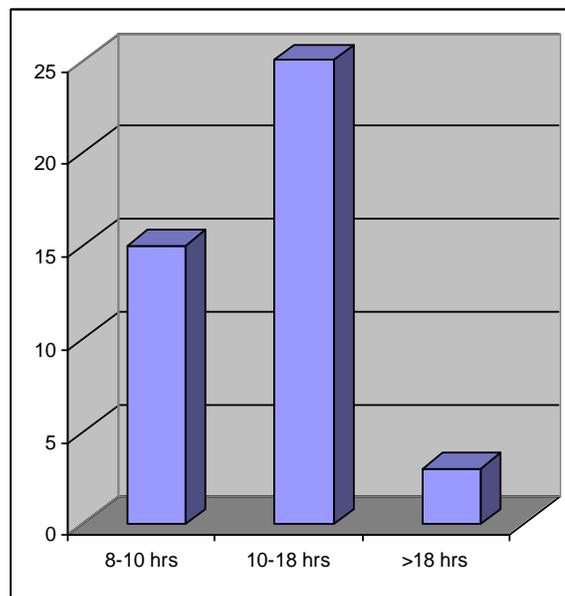


Fig. IV: Induction-delivery interval in group II



DISCUSSION

The rate of induction varies from 9.5 to 33% of all pregnancies. When the bishop score is unfavorable that is less than 6, it is recommended that cervical ripening agent be used for induction of labour. Pharmacological agents available for cervical ripening and labour induction include different types of prostaglandins. Prostaglandin acts on cervix by a number of different mechanisms. PGE₂ is widely used but it is expensive and require refrigeration for storage. Misoprostol is a synthetic PGE₁ analogue. It is found to be safe, inexpensive but effective in induction of labour. S. Wing D, A Rahall, Jones M M, in a randomized control trial used oral misoprostol and vaginal dinoprostone for induction of labour and found it as convenient and effective. Result in the study group was same as vaginal dinoprostone¹³.

Hofmeyr GJ, Gulmezoglu AM, carried out a systematic review for oral misoprostol and found it to be effective but suggest further trial regarding its safety¹⁴.

Peter C Cheung, Evelyn L, and K Yeo used oral misoprostol in Prelabour rupture of membranes at term and results were same as in our study¹⁵. Oral misoprostol for induction of labour has been used in gynae unit of holy family hospital and found oral misoprostol more convenient and effective for induction of labour¹⁶.

Alferivic conducted a study on oral misoprostol and found it more acceptable with reduced infection rate. Their result were same regarding duration of interval from first dose till delivery. They found it to be slow in initiation and progression of labour but effective and lesser side effects¹⁷. Misoprostol has

been used with different routes of administration. Absorption is good with different routes but peak concentration is achieved within 12 minutes after oral administration and almost one hour after vaginal route. Survey regarding its use by obstetrician has been carried out in Nigeria and found to be effective but with life threatening side effects, if used in poorly assessed patients and in high doses^{18,19}.

CONCLUSION

Oral misoprostol is effective for induction of labour in both primigravida and multigravidas. Induction to delivery was less than 18 hours in group 2 and it was more than 18 hours in group 1. Similarly caesarean section were more in group 1 (primigravida in) than group 2 (multigravidas). However in properly selected cases where there is no contraindication, it is found to be safe, effective and cheaper.

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