



CODEN [USA]: IAJPBB

ISSN: 2349-7750

INDO AMERICAN JOURNAL OF  
**PHARMACEUTICAL SCIENCES**

<http://doi.org/10.5281/zenodo.2619284>

Available online at: <http://www.iajps.com>

Research Article

**REVEALING COMPARISON OF THE MEDICINE  
MISOPROSTOL AND DINOPROSTONE USED IN INDUCED  
PREGNANCY**

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Article Received: January 2019

Accepted: February 2019

Published: March 2019

**Abstract:**

**Objective:** We aimed in this analysis to differentiate the suspected fetal compromise in 6 hourly vaginally administered 3 doses of misoprostol as compared to dinoprostone which is used for induced pregnancy.

**Study Design:** This analysis is comparatively observational type.

**Place and duration:** This analysis was performed for the duration of one year from March, 2018 to February, 2019 at Gynae Ward Mayo Hospital Lahore.

**Methodology:** A total number 200 female cases suffering from induced pregnancy of 41 weeks were chosen for this analysis which were casually separated equally with number of 100 cases in dinoprostone group and misoprostol group. In the rotation of 6 hours dosage of misoprostol was 50 mcg every time with the upper limit of 150 mcg as a total of 3 medications and dinoprostone was used only 2 mg per 2 medications. Fetal heart beat was constantly supervised after induction. Symptoms of fetal compromise as meconium staining of liquor of membrane and CTG were recorded. Apgar score at 5 minutes was recorded after the birth of baby if any requirement to take the baby to nursery or artificial respiration is vital.

**Results:** In misoprostol group and dinoprostone group the average of cases was  $25.4 \pm 4.5$  years and  $23.3 \pm 3.4$  years respectively and the average period of induced delivery rotation in misoprostol and dinoprostone group was  $16.4 \pm 6.4$  and  $13.1 \pm 4.6$  hours respectively. Number of 40 cases were delivered with LSCS and 60 cases were delivered through spontaneous vaginal delivery with the percentage of 40.0% and 60.0% respectively in the misoprostol group while number of 36 cases were delivered with LSCS and 64 cases were delivered through spontaneous vaginal delivery with the percentage of 64.0% and 34.0% respectively. In misoprostol group and dinoprostone group the mean Apgar value at 5 minutes was  $8.5 \pm 0.9$  and  $8.6 \pm 0.9$  respectively. In the Misoprostol group and dinoprostone group number of 5 and 2 cases with the percentage of 5.0% and 2.0% respectively were admitted in ICU.

**Conclusion:** As a comparison of dinoprostone, misoprostol was used for the induced pregnancy at 50 mcg medication without reduction of its affect related to Delivery and induction and the suspected fetal compromise haven't raised was obtained through this analysis.

**Key Words:** Misoprostol, dinoprostone, Fetal distress, induced pregnancy.

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Please cite this article in press Hadiqa Jafri et al., *Revealing Comparison of The Medicine Misoprostol and Dinoprostone Used in Induced Pregnancy.*, Indo Am. J. P. Sci, 2019; 06(03).

**INTRODUCTION:**

The conditions are shown while the usual onset of pregnancy forms critical to the baby and mother which impose the consequences of artificially induced pregnancy. Therefore, the preservation of possibility of damaging delivery and consequent fetal pain more than spontaneous pregnancy is related circumstance and the required artificial pregnancy induction often come to be necessary. Slightly extreme inspiration might outcome through pharmacological representatives concerning uterine reduction. It has been founded before that pharmacological representatives which increase the uterine reduction may affect to cut off the placenta or breakup the uterus which may also make the reduction of the uterus long-lasting and tough by removing the child from necessary oxygen [1,2]. Several biochemical and biophysical methods were formulated for the observation of fetal pain by the conclusion of all possible risks of induced pregnancy. These were comprised of fetal heart beat value, cardiotocography and fetal scalp blood ph. Misoprostol is significant analogue of prostaglandin E1 and potential medication. It was before used to non-living embryo in the year 1987 and above than a hundred ordeals had got it fruitful medication for feasible embryo also. This beneficial medication was written as gastric cytoprotective representative. Before it was medicated to a lifeless fetus and from then it was observed as an affective medicine to a feasible fetus also through above than a hundred experiments. As it was not permitted by FDA of induced pregnancy but it was shown to have a very low price, effective and safe representative to the cervical ripening and inducing artificial discomfort. Misoprostol could be normally medicated by several routs like sublingual, buccal, vaginal and oral. It is taken in instantly through gastrointestinal area and undergo de-esterification with its free acid which is major role of it when it is medicated orally. The overall systematic bioavailability of vaginally directed misoprostol is three folds maximum than orally directed misoprostol which is presented through this analysis. More advantages related to misoprostol consists its similarity with the reference of its affect with exclusive fundamentals as dinoprostone and oxytocin, case of oral direction economic disposal and its constancy at room temperature. Therefore, its potential advantages proved it to be an essential medicine to mainly induced pregnancy when prostaglandin E1 rareness [3,4]. Various types of medications for ideal outcomes were aimed and determined through different analysis and several of them were settled on

50 mcg medicine which is directed vaginally each 4 to 6 hours [4].

The capability of being habitual outcome normal vaginal delivery in 24 hours of treatment is one else factor of its selection as main variety for induced pregnancy and cervical maturity preventing every necessity of oxytocin augmentation and keeping away the requirement of caesarian segment [4,5]. However, this medicine consists of consequences and contraindication. Fetal heartbeat and other functions might be influenced due to every compassion of misoprostol, its over medication and hyperactivity and make the fetus to undergo from anxiety. Usage of misoprostol is straightly associated with tachysystole which is mostly explained as the six or above uterine reductions in minutes for two repeated 10 minutes time. Tachysystole has undefined influences on cardiotocographic variations of Fetal heart ailment is necessary to be remarked now [6]. Dinoprostone PGE2 medicine is an else reactive representative which is useful for provision of cervical maturity through softness and inspiration of uterus reductions. This medicine is mostly treated for artificial induction of pregnancy which is also called IOL.

Dinoprostone is endorsed for treatment of cervix and pregnancy pain in condition of spontaneous pregnancy distraction or late-treatment between late-coming female [7]. In various countries dinoprostone E2 is just approved medicine for the treatment of pregnancy induction and founded as most reactive. But currently the analysis has concentrated and progressed most awareness in the usefulness of misoprostol PGE1. Consistency at room temperature, low in price and quick reactivity are the most famous features of misoprostol. However, dinoprostone PGE2 is recommended by FDA also and it is one else analogue of prostaglandin but still in various analysis the misoprostol is more significant as compared to its effectiveness [8]. Several analyses have built up visibly maximum efficacy of vaginally directed misoprostol versus vaginal dinoprostone for each that are induced pregnancy and cervical maturity. Misoprostol which is vaginally directed can present better outcomes versus each dinoprostone and oxytocin was founded by the Cochrane Pregnancy and Childbirth Group after the perilous analysis of 45 analyzations [9, 10, 11]. Team has the major involvement in the direction and medication of every medicine which is required to get most training and execute the whole treatment for better results. We have treated 50 mcg obtained from 200 mcg oral tablet have to be medicated vaginally through the

observation of factor like no usual medication treatments are progressed still.

#### **METHODOLOGY:**

We aimed in this analysis to differentiate the suspected fetal compromise in 6 hourly vaginally administered 3 doses of misoprostol as compared to dinoprostone which is used for induced pregnancy. This analysis is comparatively observational type which was performed at Obstetrics Ward Mayo Hospital Lahore. A total number 200 female cases suffering from induced pregnancy of 41 weeks were chosen for this analysis which were casually separated equally with number of 100 cases in dinoprostone group and misoprostol group. In the rotation of 6 hours dosage of misoprostol was 50 mcg every time with the upper limit of 150 mcg as a total of 3 medications and dinoprostone was used only 2 mg per 2 medications. Fetal heart beat was constantly supervised after induction.

Symptoms of fetal compromise as meconium staining of liquor of membrane and CTG were recorded. Apgar score at 5 minutes was recorded after the birth of baby if any requirement to take the baby to nursery or artificial respiration is vital. Inclusion eligibility was female cases between 18 to 35 years of age, postdate pregnancy and cases with bishop score not above than 5 and exclusion eligibility was multigravida, cases having bishop score above than 5, cases with intrauterine death, fetus which is distorted congenitally, several gestations, term and pattern of pregnancy, conditional pregnancy with spontaneous rupture of crusts, cases with intrauterine growth delay and pregnancy with medical disorders. Examination of gathered information was consequently enrolled in SPSS 18. Calculable various factors like period of pregnancy and age were shown as average and typical variation. The calculable various factors were shown as percentages and frequency. The variations in results like CTG differences while induction, induction delivery rotation, meconium staining, Apgar score of children at 5 minutes, mode of delivery and NICU entitlements of the two groups were examined through Chi Square method. P-value was proposed as minimum than 0.005.

Artificial pregnancy grief ever had the consequence of fetal influence and is most hurting than impulsive pregnancy. The sequence of procedures which are associate the child to grieve of pain, to be scarce from vital oxygen and direct to asphyxiate might be promoted by uterine reduction due to participation of the pharmacology representatives. For the protection of the participated individual survival and making simple the induction of pregnancy the enhanced

labors for adjusting secure and progressed procedures were predictable.

#### **RESULTS:**

A total number 200 female cases suffering from livingly induced pregnancy of 41 weeks having age between 18 to 35 years were chosen for this analysis which were separated equally with number of 100 cases in dinoprostone group and misoprostol group. In the rotation of 6 hours dosage of misoprostol was 50 mcg every time with the upper limit of 150 mcg as a total of 3 medications and dinoprostone was used only 2 mg per 2 medications. Fetal heart beat was constantly supervised after induction. Symptoms of fetal compromise as meconium staining of liquor of membrane and CTG were recorded. Apgar score at 5 minutes was recorded after the birth of baby if any requirement to take the baby to nursery or artificial respiration is vital. In misoprostol group and dinoprostone group the average of cases was  $25.4 \pm 4.5$  years and  $23.3 \pm 3.4$  years respectively and the average period of induced delivery rotation in misoprostol and dinoprostone group was  $16.4 \pm 6.4$  and  $13.1 \pm 4.6$  hours respectively. Number of 40 cases were delivered with LSCS and 60 cases were delivered through spontaneous vaginal delivery with the percentage of 40.0% and 60.0% respectively in the misoprostol group while number of 36 cases were delivered with LSCS and 64 cases were delivered through spontaneous vaginal delivery with the percentage of 64.0% and 34.0% respectively. In misoprostol group and dinoprostone group the mean Apgar value at 5 minutes was  $8.5 \pm 0.9$  and  $8.6 \pm 0.9$  respectively. In the Misoprostol group and dinoprostone group number of 5 and 2 cases with the percentage of 5.0% and 2.0% respectively were admitted in ICU. There were 22 cases in the age of 18 to 20 years, 31 cases of 21 to 25 years, 39 cases in the age of 26 to 30 years and 8 cases in the age of 31 to 35 years with the percentage of 22.0%, 31.0%, 39.0% and 08.0% respectively in the misoprostol group. There were 23 cases in the age of 18 to 20 years, 60 cases in the age of 21 to 25 years, 14 cases in the age of 26 to 30 years and 3 cases in the age of 31 to 35 years with the percentage of 23.0%, 60.0%, 14.0% and 3.0% respectively. The Average gestational age of cases in misoprostol group and dinoprostone group was  $41.2 \pm 0.4$  weeks and  $41.2 \pm 0.4$  weeks respectively. There were 76 cases in the gestational age of 42 weeks and 24 cases in the gestational age of 42 weeks with the percentage of 76.0% and 24.0 % respectively in the misoprostol group. There were 77 cases in the gestational age of 41 weeks and 23 cases in the gestational age of 42 weeks with the percentage of 77.0% and 23.0 %

respectively in the dinoprostone group. 46 cases were reactive and 54 cases were non-reactive with the percentage of 46.0% and 54.0% respectively in the misoprostol group observed through the separation of cases for CTG variation while admission was directed. 29 cases were reactive and 71 cases were non-reactive with the percentage of 29.0% and 71.0% respectively in dinoprostone group. Whereas 19 cases of grade-I meconium staining, 16 cases of grade-II, 12 cases of grade-III and 53 cases have no meconium staining with the percentage of 19.0 %, 16.0 %, 12.0% and 53.0% respectively for the separation of misoprostol group through meconium staining. There were 10 cases of grade-I meconium staining, 18 cases of grade-II, 8 cases of grade-III and 64 cases had no meconium staining with the percentage of 10.0%, 18.0%, 08.0% and 64.0% respectively in the dinoprostone group. The average period of induction to delivery rotation in misoprostol group and dinoprostone group was  $16.4 \pm 6.4$  hours and  $13.1 \pm 4.6$  hours respectively. More describing the rotation of misoprostol group there were 27 cases founded

lying in the period of induction to delivery interval time of 5 to hours, 15 cases of 11 to 15 hours, 38 cases of 16 to 20 hours, 16 cases 21 to 25 hours and 4 cases of 26 to 30 hours with the percentage of 15.0%, 38.0%, 16.0%, and 4.0% respectively. There were 30 cases lying in the induction of delivery to rotation period of 5 to 10 hours, 52 cases of 11 to 15 hours, 14 cases of 16 to 20 hours and 4 cases of 26 to 30 hours with the percentage of 30.0%, 52.0%, 14.0% and 4.0% respectively in the dinoprostone group. There were 47 and 53 cases with the percentage of 47.0% and 43.0% in misoprostol group which had 7 to 8 Apgar score at 5 minutes and 9 to 10 Apgar score respectively. There 43 and 57 cases in the dinoprostone group with the percentage of 43.0% and 57.0% which had 7 to 8 Apgar score at 5 minutes and 9 to 10 Apgar score respectively. In misoprostol group and dinoprostone group there were 01.0% and 03.0% cases respectively which were admitted in the ICU. The results are shown below in the following tabular forms:

**TABLE NO 01: AGE DISTRIBUTION**

Age limit	No of cases in misoprostol group	No of cases in dinoprostone group	Percentage of cases in misoprostol group	Percentage of cases in dinoprostone group	Average age of misoprostol group	Average age of dinoprostone group
18-20	22	23.	22.0%	23.0%	41.2 ± 0.4	41.2 ± 0.4
21-25	31	60	31.0%	60.0%		
26-30	39	14	39.0%	14.0%		
31-35	08	03	08.0%	03.0%		

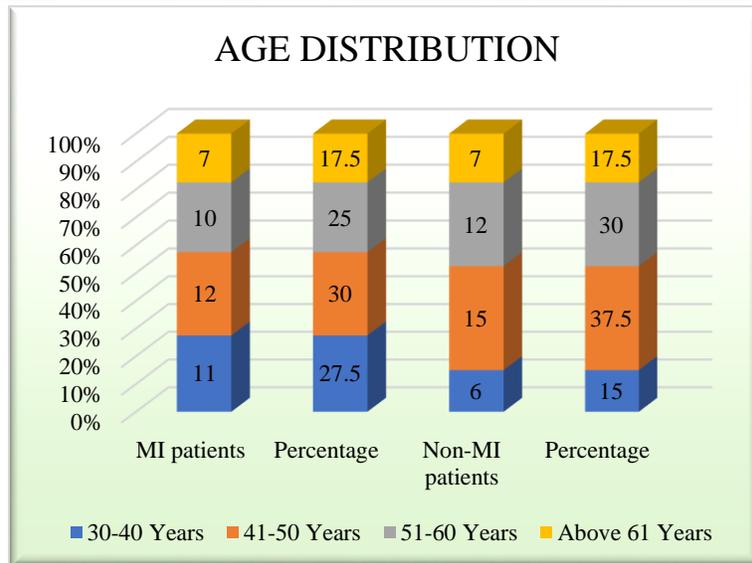
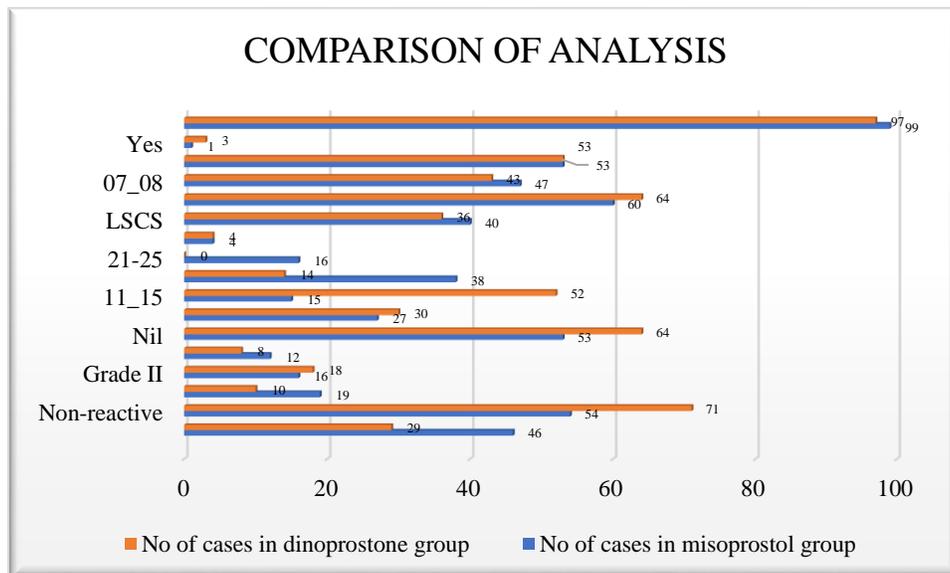


Table No 02: Comparison of Analysis

Types of Analysis		Misoprostol Group	Dinoprostone Group	Percentage of misoprostol group	Percentage of dinoprostone group	P value
CTG changes	Reactive	46	29	46.0%	29.0%	0.013
	Non-reactive	54	71	54.0%	71.0%	
Meconium staining	Grade I	19	10	19.0%	10.0%	0.198
	Grade II	16	18	16.0%	18.0%	
	Grade III	12	8	12.0%	08.0%	
	Nil	53	64	53.0%	64.0%	
Induction to delivery interval (hours)	5-10	27	30	27.0%	30.0%	0.000
	11-15	15	52	15.0%	52.0%	
	16-20	38	14	38.0%	14.0%	
	21-25	16	0	16.0%	00.0%	
	26-30	4	4	04.0%	04.0%	
Mode of delivery	LSCS	40	36	40.0%	36.0%	0.001
	SVD	60	64	60.0%	64.0%	
Apgar score	7-8	47	43	47.0%	43.0%	0.707
	9-10	53	53	53.0%	53.0%	
Admission in ICU	Yes	1	3	01.0%	03.0%	0.001
	No	99	97	99.0%	97.0%	

P-value less or equal to 0.05 were taken as significant



### DISCUSSION:

Induced pregnancy had become required yet in patients where natural childbirth would be fetal to mother and child each. Artificial induced pregnancy is necessary around the world with the percentage of 20.0%. Several of them were almost effective. But 20.0% were failed related to CS. The rate and frequency of induction is periodically raised. An

analysis presented out of any 5 deliveries need induced pregnancy [11,12]. The major factor for this raise is a certain intensity of marginal or elective factors. Moreover, deferred gestational duration of 40-41 weeks also require the artificial induced pregnancy. Current analysis presented this raise is majorly because of increased inductions for elective and marginal factors [13, 14]. Few females suffer

from pain due to late start of pregnancy induction as about their predicted date [15]. Obstetricians have double remittance of enduring the compression of these cases and almost the influence for the usage of prostaglandins in this condition. To prevent the fetal pain and conditions which are related to it like late gestational duration, suitable assortment of delivery process can be obtained by undergoing specific and perfect examination and discussion and difficulties associated with fetal and maternal health. In misoprostol group and dinoprostone group the average period of induction to delivery rotation was  $13.1 \pm 4.6$  hours and  $16.4 \pm 6.4$  hours respectively by our analysis. These outcomes were similar as the analysis by Papanicolaou et al through which the misoprostol and dinoprostone group consists average period of induction to delivery rotation of 11.9 hours and 15.5 hours respectively. Whereas, by an else analysis directed with Danielian et al which shows the misoprostol group and dinoprostone group had average period of induction to delivery rotation was 14.4 hours and 22.9 hours respectively as similar as our analysis. Therefore, the average of induction to delivery was less in misoprostol group than dinoprostone group as  $16.5 \pm 2.7$  hours  $< 25.7 \pm 3.8$  hours through an else analysis held by Chang and Chang [18]. Most of the female cases also treated by CS or vacuum operative delivery because of unnerve FHR in the misoprostol group. Minimum Apgar score in the first minute and entrance in the newborn child section through the fist 24 hours were considered if newborn child results like neonatal artificial respiration where no one of the above were conditionally important but they were most regular through Misoprostol group having less possibility of clinical consequence. Misoprostol may raise the difficulties in childbirth. Therefore, certainly our model extent may be unable to verify standard protection and usage of misoprostol inclines related to a maximum chance for entrance to the neonatal section through 24 hours as in the nonappearance of asphyxia. This proof shows that the early access to the delivery is not required to be the best. It is presented that the raise in clinically related opposing influences is not just associated with misoprostol but it else is associated with other medications directive to attempt the above shown reactions of misoprostol medication [19,20]. Lyons et all had presented the condition pregnant rats which have necessity to deliver maximum medication of misoprostol to induce PGE2 secretion in the cervix than in myometrium. Moreover, the EP3 receptors and prostaglandin E2 receptors are shown in the myometrium which is raised in diverse condition than cervix which is unaltered may retaliate to misoprostol [21]. Misoprostol just not reacts usefully on the

myometrium than on cervix but consequently a maximum medication is required for development of the cervix which is shown through the upper observations. Therefore, it is observed logical to raise the rotation in continuous medications of misoprostol would decrease the consequences of an asynchrony in a well or although hyper-stimulated uterus and even now laboriously matured cervix. Misoprostol possibly has a maximum irregularity between cases with pharmacokinetics conditions but it is mostly possible that the 50-mcg medication may generate asynchrony in small cervical thinning and uterine reductions outcoming in newborn difficulties and inherent strength. Certainly, the admission rate of newborn in ICU was radically less in the misoprostol group through the current analysis by matching 25 mcg misoprostol with 1 mg dinoprostone directed vaginally each four hours [22]. The vertex was not involved to the pelvic inlet on the admission day and this must be entered as impartial consequent influence in several cases to be required. The actual factor of abortion in dinoprostone group leftover indistinct therefore highlighting the requirement of repeated FHR direction during pregnancy induction if constant uterine reductions exist [23, 24].

#### CONCLUSION:

To achieve 50 mcg misoprostol in 6 hours rotation is most useful to endorse cervical maturity and in generating pregnancy versus dinoprostone. Although, some factors related with fetal consequences in pregnancy direction still are undefined. Maximum potential analysis matching voting direction to anxious treatment after an accomplished 40-week gestation which was on the circumstances of initial ultrasound biometry might explore a subgroup of female cases like primigravida with opposed cervix which might advantage to selected induction rather than to a 25-mcg early medication of misoprostol.

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