

## Original Research

### An Observational Study on Dinoprostone Gel and Misoprostol on Induction of Labour in Intrauterine Fetal Death

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#### ABSTRACT:

**Background:** The objectives of this study were to find the most effective method of induction of labour in case of intrauterine fetal death. **Methods:** This was a prospective observational study carried out between July 2017 to June 2018 in Department of Obstetrics and Gynaecology, Nalanda medical college hospital, Patna, Bihar. 50 cases of IUFD after 20 weeks of gestation, fulfilling inclusion criteria were selected. As this study was prospective observational, so method of induction of labour was noted and result was analysed. The agents used for induction of labour were misoprostol and dinoprostone gel. **Result:** The interval between induction-delivery was shortest with dinoprostone gel followed by misoprostol. Failure occurred in 1 case, which required emergency Lower Segment Caesarean Section. **Conclusion:** Dinoprostone gel and misoprostol are safe for induction of labour in all cases of IUFD.

**Key words:** Intrauterine foetal death (IUFD), Dinoprostone, Misoprostol, Induction of Labour.

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#### INTRODUCTION

Foetal death refers to the spontaneous intrauterine death of a foetus at any time during pregnancy. Often the causes may remain unexplained; other commonest causes are pregnancy complications such as preeclampsia, diabetes mellitus, growth restriction, birth defects, etc. Spontaneous labour usually ensues in majority of women within 2 weeks. However, induction of labour is performed in many cases due to psychological and social pressure. Prostaglandins (misoprostol and dinoprostone), Oxytocin and intracervical Foleys catheter (Mechanical dilator) have been used to induce labour in IUFD. In our institute, misoprostol and dinoprostone gel are being used mostly with or without combination with oxytocin.

#### PURPOSE OF STUDY

The purpose of this study was to find out the most effective method of Induction of labour in IUFD. The efficacy was described as least Induction-delivery interval and least maternal complication.

#### METHODOLOGY

This study was prospective observational study carried out in the Department of Obstetrics and Gynaecology, Nalanda Medical College and Hospital, Patna, Bihar between July 2017 to June 2018. 50 cases of IUFD after 20 weeks of gestation fulfilling inclusion criteria were selected. The study was carried out after approval by institutional ethical committee.

#### INCLUSION CRITERIA

1. Diagnosed cases of IUFD
2. Gestation more than 20 weeks
3. Patient not in labour
4. Singleton pregnancy

#### EXCLUSION CRITERIA

Refusal of consent

All patients presenting to OPD or labour room with fetal death were enrolled in this study after taking informed valid consent. Details of history, general physical and

systemic examination, ultrasonography, basic laboratory investigations like haemoglobin level and coagulation profile noted. Agents of induction as decided by consultant noted and results were analysed.

**RESULT**

Out of 50 patients, most of them had poor antenatal care, with less than 3 antenatal visits. Majority of the patients were in age group 21-35years. Out of 50 patients, 22 were primipara, while 28 were multipara .

Table 1. Showing distribution of agent of induction

| Drug             | No. of Patients |
|------------------|-----------------|
| Dinoprostone gel | 30              |
| Misoprostol      | 20              |

The commonest documented cause for IUFD in this study was mostly unexplained , followed by hypertensive disorder, IUGR, congenital malformation and diabetes mellitus.

Out of 30 patients, where dinoprostone gel used as primary method, 10 patients delivered alone with dinoprostone, while 20 patients needed secondary method of induction with oxytocin. Misoprostol was used more often in second trimester and early week of third trimester. Misoprostol was used through vaginal route (posterior fornix). Most frequently used regimen in second trimester was 400mcg misoprostol used 4 hourly (maximum 5 doses), while in third trimester 200mcg of misoprostol followed by 50 mcg 4 hourly (maximum 5 doses). Out of 20 patients, only 2 required oxytocin as secondary method. One failure was noted in misoprostol group, for which emergency Caesarean Section was done. Overall, 49 out of 50 patients delivered successfully. Failure of induction occurred in one case, which required emergency LSCS. Failure occurred in case of previous two LSCS, where misoprostol was used. Emergency LSCS was done due to development of scar tenderness.

The mean induction to delivery time was used to determine efficacy. The time between induction to delivery was calculated and compared. The average time between induction to termination was calculated to be 13.15hours. The mean induction to delivery time was least in dinoprostone i.e. 12.28h followed by misoprostol group, 15.50h. p value calculated was 0.3, which was not statistically significant. Hence, it was concluded that both method of induction were equally effective. Only minor side effects like fever and diarrhoea were noted with misoprostol. No significant side effect appeared with dinoprostone.

Table 1: Mean induction to delivery interval

| Method of induction | N = 50<br>Mean | Time (minutes) |
|---------------------|----------------|----------------|
| Dinoprostone gel    | 30             | 36             |
| Misoprostol         | 20             | 30             |

p value = 0.3 (not significant)

**DISCUSSION**

IUFD causes distress and psychological trauma to the patients and their family. Since long various attempts have been made to reduce its occurrence. Despite decline in overall perinatal mortality rate, IUFD still occurs at an unacceptably high level<sup>1</sup>. In this study, dinoprostone and misoprostol were used as agents of induction of labour in IUFD.

Nascimento et al<sup>2</sup> analysed the use of vaginal misoprostol with intravenous oxytocin for induction of labour in 171 women with IUFD in 2<sup>nd</sup> trimester and 3<sup>rd</sup> trimester in Brazil. Patients were divided to group A (misoprostol alone), group B (misoprostol and oxytocin) and group C (oxytocin alone) in 9.3, 19.9 and 70.8% cases respectively. Majority of the cases required (71%) single administration of misoprostol in group A. They concluded that misoprostol effectively contributed to delivery of IUFD by vaginal route. This is in contrast to our study, where dinoprostone and misoprostol with or without oxytocin were used. In misoprostol group, 90% cases required only misoprostol (repeated doses), while only 10% required misoprostol along with oxytocin.

Mei et al<sup>3</sup> of China compared the efficacy of mifepristone and ethacridine lactate with ethacridine lactate alone for termination of pregnancy among 276 women between 16 to 27 weeks of gestation. He found that induction to abortion interval, blood loss, rate of retained placental tissue and uterine evacuation were significantly less in mifepristone and ethacridine lactate group as compared to ethacridine group. In our study, we have analysed misoprostol and dinoprostone for induction of labour in IUFD in contrast to Mei study. A prospective study done by Titol Biswas<sup>4</sup> in 40 patients with IUFD after 28 weeks gestation. His study compared the efficacy of vaginal misoprostol with dinoprostone in induction of labour in late intrauterine fetal death. He concluded that misoprostol is safe, tolerable and more effective than dinoprostone gel, which was in contrast to our study, where mean induction to delivery time was shorter for dinoprostone as compared to misoprostol.

A retrospective study was done by Shehla Jamal<sup>5</sup> on 995 patients, in which 56 patients were IUFD. According to this study, maximum cases were found in primigravida i.e 35.7%, which was contrast to our study, where most of the cases of IUFD were found in multigravida. Raymond E G et al<sup>6</sup> demonstrated higher IUFD in multigravida, similar to our study.

**CONCLUSION**

Management of IUFD has immense significance in today’s obstetric practice. Dinoprostone gel and misoprostol can be used for induction of labour in second and third trimester IUFD. Of these, misoprostol is the most cost effective method. It is cheap and easily available and doesn’t require refrigeration as compared to dinoprostone gel. It is stable at room temperature. Both misoprostol and dinoprostone can be safely used in cases of previous LSCS. However, it is difficult to suggest a standardized protocol for induction of labour in cases of IUFD. Subjective preference and comfort of individual

consultant still plays a major role in selecting the agent for induction of labour and will continue to do so till larger and long term comprehensive, prospective comparative data are available.

## REFERENCES

1. Clinical practise guidelines: Investigation and management of late fetal intrauterine death and stillbirth. Institute of obstetrician and gynaecologist, Royal college of physician Ireland, and Directorate of strategies and clinical programmes, Health service executive. October 2011, revised 2013.version 1.0, guideline no.4.
2. Nascimento MI, Cunha AA, Oliveira SR, et al. Misoprostol use under routine conditions for termination of pregnancies with IUFD. *Rev Assoc Med Bras.*2013;59(4):354-59
3. Mei Q, Li X, Liu H et al. Effectiveness of mifepristone in combination with ethacridine lactate foe second trimester pregnancy termination. *Eur J Obstet Gynecol Reprod Biol.* 2014; 178:12-5
4. T. Misoprostol versus Dinoprostone gel in induction of labour in late intrauterine fetal death with unfavourable cervix: a prospective comparative study. *Int J Reprod. Contracept. Obst. Gynecol.* 2015; 4:35-37
5. Jamal S et al. *int J Reprod Contracept Obstet Gynecol.* 2017 Dec;6(12)5483-5487
6. Raymond EG, Cnattingious Skiely JL. Effect of maternal age, parity and smoking on the risk of stillbirth *BJOG.* 1994; 101:301-306