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Original Research Article

Effectiveness of combined use of mifepristone and misoprostol in comparison to misoprostol alone in induction of labor in intrauterine fetal death

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ABSTRACT

Background: Intrauterine fetal death (IUFD) remains a significant obstetric challenge, with a global prevalence of 1-4% of pregnancies. Timely and effective induction of labor is critical to minimizing complications like coagulopathy and infection. Prostaglandins, especially misoprostol, are widely used for labor induction. This study compared the efficacy and safety of the combined regimen of mifepristone and misoprostol in comparison to misoprostol alone in IUFD management.

Methods: This randomized controlled trial was conducted in the department of obstetrics and gynecology, Institute of Child and Mother Health (ICMH), Matuail, Dhaka, from October 2023 to March 2025. A total of 68 patients with intrauterine fetal death (IUFD) requiring induction of labor were enrolled.

Results: The induction to labour interval was significantly shorter in group A (6.32±2.16 hours) compared to group B (16.06±5.59 hours) p=0.00. The induction-to-delivery interval was significantly shorter in group A (13.88±5.36 hours) compared to group B (26.62 ±11.86 hours, p=0.00). The mean dose of misoprostol was lower in group A (2.85±0.61) versus group B (3.97±0.30, p<0.001). Group A demonstrated fewer side effects like fever which was statistically significant (p-0.008). Other side effects like diarrhoea vomiting headache were not statistically significant. There were no statistically significant differences in the observed complication like PPH retained placenta hyperstimulation gastrointestinal symptoms in both groups. Group A also demonstrated shorter hospital stay (4.71±0.63 versus 5.21±0.77 days, p=0.005).

Conclusions: Combined mifepristone and misoprostol therapy is more effective and safer than misoprostol alone for labor induction in intrauterine fetal death.

Keywords: Efficacy, Intrauterine fetal death, Labor induction, Mifepristone, Misoprostol, Randomized controlled trial, Safety

INTRODUCTION

Intrauterine fetal death represents one of the most distressing and tragic complications in obstetric practice. A clinically accepted definition of IUFD is the death of a fetus at or after 28 weeks of pregnancy, but for international comparison WHO has now recommended IUFD as a baby born with no sign of life at or after 22 weeks of gestation.[1] The antepartum death occurring beyond 28 weeks is termed intrauterine death for all practical purposes. Several maternal, placental, and fetal conditions can result in fetal demise, but in about 25-35% of cases, the cause remains unknown. If the dead fetus is retained in the uterus for more than 4 weeks, it can lead to consumptive coagulopathy and disseminated intravascular coagulation.[2] Common causes of IUFD include maternal systemic illnesses such as diabetes mellitus and hypertension and fetal causes such as infection, immune hemolytic disease, cord accidents, metabolic disorders, malformation, and placental dysfunction.[3] Intrauterine fetal death (IUFD) is estimated to occur in 1% of all pregnancies. The introduction of prostaglandins has greatly improved the management of IUFD, though their effectiveness is often restricted by accompanying side effects. These side effects are dependent on the type of prostaglandin, route of administration and dose.[4] Various methods have been tried in the management of intrauterine death. Before the introduction of the prostaglandins, women with intrauterine death were managed by giving repeated high doses of estrogens, intra amniotic injection of hypertonic solutions, use of hygroscopic tents, bougies, catheter, and balloon, or more frequently with repeated high dose infusion of oxytocin.[5]

Management of fetal death in utero has changed dramatically from earlier recommendations that regarded the event as a medically innocuous condition to be managed conservatively except under life threatening circumstances, with 75% of women delivered within two weeks after fetal demise. When a dead fetus has been in utero for 3-4 weeks, fibrinogen levels may drop, leading to a coagulopathy. Early recognition and induction of labor can prevent life threatening complications like coagulopathy to a great extent. Due to the advent of newer agents for effective cervical ripening and uterine contraction, the management of IUFD has become more proactive.[6] The role of antiprogestin, mifepristone for uterine priming was first reported by Cabrol et al, who reported successful induction of labor using mifepristone 200 mg 12-hourly for 2 days.[7] Mifepristone is a synthetic steroid that acts as an antiprogestational agent. It induces cervical ripening and increases uterine activity and leads to expulsion of fetus and is widely used for 1st and 2nd trimester termination of pregnancy.[8] Oral misoprostol administration for labour induction with IUFD was first described in Sao Paulo, Brazil in 1978. Repeated dose may cause many side effects such as uterine hyperstimulation and systemic side effects like nausea, fever, shivering, diarrhea always remains issue of concerns. Mifepristone, administration before misoprostol increase the sensitivity of the uterus to prostaglandins and ripens cervix, thereby allowing lower doses of misoprostol to induce labour.[9]

In studies in which the use of misoprostol in cases of IUFD has been evaluated, mean induction-to delivery times have varied from 10 to 19 hours. The results of several non-comparative studies have suggested that the induction-to-delivery time can be shortened to 7 to 10 hours by administration of the antiprogesterone mifepristone prior to misoprostol.[10] Subsequently it was observed that combination of mifepristone and misoprostol for induction of labor in late intrauterine death is more effective and safer regimen and the induction to delivery interval is shorter than the studies using mifepristone or misoprostol alone.[7] Many studies have examined the ideal dosing, route of administration and timing of mifepristone and misoprostol regimens for medical abortion for up to 24 weeks of gestation. It was found that misoprostol preceded by a dose of mifepristone is the most effective regimen resulting in shorter times to expulsion. Hence, the present study was aimed to compare the effectiveness of mifepristone and misoprostol and misoprostol alone in intrauterine fetal death in labor induction.[11]

Objective

The objective of this study was to determine the effectiveness of the combined use of mifepristone and misoprostol in comparison to misoprostol alone in induction of labor in intra uterine fetal death.

METHODS

This randomized controlled trial was conducted in the department of obstetrics and gynecology, Institute of Child and Mother Health (ICMH), Matuail, Dhaka, from October 2023 to March 2025. A total of 68 patients with intrauterine fetal death (IUFD) requiring induction of labor were enrolled, with 34 patients in each group. Convenient sampling was used for patient recruitment, and simple random sampling by lottery method was applied for group allocation. Group A (experimental group) received a single oral dose of 200 mg mifepristone followed by 100 µg misoprostol inserted in the posterior fornix after 48 hours if gestational age was less than 34 weeks, or 50 µg if gestational age was ≥34 weeks. Misoprostol doses were repeated at six-hour intervals as needed, with a maximum cumulative dose of 600 µg. Group B (control group) received only misoprostol 100 µg every six hours by the same route, with the same maximum dosage.

Patients were selected based on inclusion criteria that included maternal age ≥18 years, gestational age ≥28 weeks, and IUFD confirmed clinically and by ultrasonography. Exclusion criteria included previous cesarean section, allergy to prostaglandins, congenital uterine anomalies, severe medical disorders, and pregnancy complications such as multiple pregnancy, placenta previa, or coagulopathy. Sociodemographic data, clinical details, and laboratory parameters (WBC, Hb,

platelet count, APTT, and PT) were recorded. Blood samples (5 ml venous) were collected under aseptic conditions. Participants were followed at baseline, 24, 48, and 72 hours to monitor outcomes.

Outcome measures included induction-to-labor interval, induction-to-delivery interval, total misoprostol dose, complications (PPH, retained placenta, hyperstimulation, gastrointestinal symptoms), side effects (fever, nausea, vomiting, diarrhea, headache), and hospital stay. Data were collected using a pretested semi-structured questionnaire, verified, and analyzed using SPSS version 26. Continuous variables were expressed as mean±standard deviation and compared using independent t-tests, while categorical variables were analyzed with chi-square tests. A p value <0.05 was considered statistically significant. Ethical approval was obtained from the institutional review board of ICMH, and written informed consent was taken from all participants, ensuring confidentiality and voluntary participation.

RESULTS

A randomized controlled trial study was conducted in the department of obstetrics and gynecology in the Institute of Child and Mother Health (ICMH), Matuail, Dhaka. After careful history taking, examination and appropriate investigations fulfilling inclusion and exclusion criteria, total 68 patients (34 in each group) with IUFD who needed labor induction and come at the department of obstetrics and gynecology in the Institute of Child and Mother Health (ICMH), Matuail, were included in the study. The main aim of the study was to determine the effectiveness of the combined use of mifepristone and misoprostol in comparison to misoprostol alone in induction of labor in IUFD.

Table 1: Sociodemographic characteristics of the study participants (n=68).

Sociodemographic variables	Group A (n=34)	Group B (n=34)	P value*	
Age group (years)				
18-20	6 (17.6)	9 (26.5)		
21-25	15 (44.1)	18 (52.9)		
26-30	8 (23.5)	4 (11.8)	0.579	
31-35	4 (11.8)	2 (5.9)		
36-40	1 (2.9)	1 (2.9)		
Mean±SD	25.32±5.04	23.82±4.53	0.201	
Educational level				
No formal education	3 (8.8)	4 (11.8)	0.522	
Primary	7 (20.6)	3 (8.8)		
Secondary	20 (58.8)	24 (70.6)		
Graduate and above	4 (11.8)	3 (8.8)		
Residence				
Urban	22 (64.7)	18 (52.9)	0.324	
Rural	12 (35.3)	16 (47.1)		
Monthly family income	**(Mean±SD)**	**(Mean±SD)**	**Minimum-maximum**	**P value**
	22294.12±5638.23	21617.65±6592.07	10000-30000	0.651

*p value was determined by chi square test and independent t-test. Values were expressed as frequency with percentage and mean±SD and within parenthesis percentage over column in total. Group A= experimental group (mifepristone and misoprostol), Group B=control group (misoprostol).

Table 2: Laboratory investigation in the study participants (n=68).

Parameter	Group A (n=34) (Mean±SD)	Group B (n=34) (Mean±SD)	P value*
WBC (per mm^3)	7185.82±1580.49	7199.68±1720.04	0.973
Hb (gm/dl)	11.90±2.03	11.97±2.18	0.891
Platelet count (per µl)	272647.06±56155.02	284411.76±54561.12	0.862
APTT (seconds)	27.50±2.72	27.53±2.72	0.965
PT (seconds)	11.54±0.58	11.72±0.62	0.210

*p value was determined by independent t-test. Group A= experimental group (mifepristone and misoprostol), Group B=control group (misoprostol).

The mean age of participants was 25.32±5.04 years in the combined group and 23.82±4.53 years in the misoprostol group. The majority were aged 21-25 years (44.1% versus 52.9%), followed by 18-20 years (17.6% versus 26.5%),

26-30 years (23.5% versus 11.8%), and 31-35 years (11.8% versus 5.9%), with the lowest representation in the 36-40 age group (2.9% in both). No significant difference was observed between groups (p>0.05). Regarding education, most participants had a secondary education (58.8% versus 70.6%), while smaller proportions completed primary education (20.6% versus 8.8%) or held graduate-level qualifications (11.8% versus 8.8%). A minority had no formal education (8.8% versus 11.8%), with no significant difference between groups (p>0.05). In terms of residence, the majority lived in urban areas (64.7% versus 52.9%), while rural residents comprised 35.3% of the combined group and 47.1% of the misoprostol group. Group A exhibits a mean monthly income of 22294.12±5638.23, while group B reports a mean of 21617.65±6592.07. The overall income distribution ranges from 10,000 to 30,000. The p value (0.651) suggests no statistically significant difference in income between the groups (Table 1).

The mean WBC was 7185.82±1580.49 (per mm^3) and 7199.68 ± 1720.04 (per mm^3), respectively. Hemoglobin (Hb) levels averaged 11.90±2.03 (gm/dl) and 11.97±2.18 (gm/dl). Group A had a mean platelet count of 272,647.06±56,155.02 per µl, while group B had 284,411.76±54,561.12 per µl. APTT was 27.50±2.72 (seconds) in group A and 27.53±2.72 (seconds) in group B. PT was 11.54±0.58 (seconds) in group A and 11.72±0.62 (seconds) in group B. None of these differences were statistically significant (Table 2).

Table 3: Distribution of the participants according to obstetric history (n=68).

Obstetric history	Group A (n=34)	Group B (n=34)	P value*
Gestational age (weeks)			
28 to 33	21 (61.8)	20 (58.8)	0.804
34 to 40	13 (38.2)	14 (41.2)	

*p value was determined by chi square test. Values were expressed as frequency with percentage and within parenthesis percentage over column in total. Group A= experimental group (mifepristone and misoprostol), Group B=control group (misoprostol).

In group A, 61.8% had a gestational age of 28-33 weeks, while 38.2% were at 34-40 weeks. In group B, 58.8% were at 28-33 weeks, and 41.2% at 34-40 weeks. The p value (0.804) indicated no significant difference between groups (Table 3).

At 0 hours, the mean values for group A (1.71±0.49) and group B (1.83±0.41) were comparable, with a p value of 0.646, suggesting no statistically significant difference between the two groups at this time point. At 4 hours, group A exhibited a significantly higher mean (8.0±0.76) than group B (5.45±0.93), with a p value of 0.001, indicating a statistically significant difference between the groups. Similarly, at 8 hours, group A showed a significantly higher mean (11.08±0.95) compared to group B (6.43±0.53), with a p value of 0.001, further supporting a statistically significant difference at this time point (Table 4).

Table 4: Distribution of the participants according to Bishop score (n=68).

	Group A (n=34) (Mean±SD)	Group B (n=34) (Mean±SD)	P value*
0 hour	1.71±0.49	1.83±0.41	0.646
4 hours	8.0±0.76	5.45±0.93	0.001
8 hours	11.08±0.95	6.43±0.53	0.001

*p value was determined by independent t-test. Group A= experimental group (mifepristone and misoprostol), Group B=control group (misoprostol).

Table 5: Drug's side effect in the study participants (n=68).

Drug side effect	Group A (n=34)	Group B (n=34)	P value*
Diarrhea	8 (23.5)	13 (38.2)	0.189
Vomiting	5 (14.7)	9 (26.5)	0.230
Fever	11 (32.4)	22 (64.7)	0.008
Nausea	6 (17.6)	10 (29.40)	0.253
Headache	5 (14.7)	9 (26.5)	0.230

*p value was determined by chi square test. Values were expressed as frequency with percentage and within parenthesis percentage over column in total.

Diarrhea was observed in 23.5% of individuals in group A and 38.2% in group B (p=0.189). Vomiting occurred in 14.7% of patients in group A compared to 26.5% in group B (p=0.230). Fever was significantly more frequent in group B, affecting 64.7% of patients, compared to 32.4% in group A (p=0.008). Nausea was reported by 17.6% of individuals in group A and 29.4% in group B (p=0.253), while headache was noted in 14.7% and 26.5% of patients in groups A and B, respectively (p=0.230). Among these adverse effects, only fever demonstrated a statistically significant difference between the groups, indicating a higher incidence in group B. The differences observed in other side effects were not statistically significant (Table 5).

Table 6: Complications in the study participants (n=68).

Complications	Group A (n=34)	Group B (n=34)	P value*
PPH	0 (0)	1 (2.9)	0.314
Retained placenta	1 (2.9)	4 (11.8)	0.163
Hyperstimulation	1 (2.9)	2 (5.9)	0.555
Gastrointestinal symptoms	1 (2.9)	4 (11.8)	0.163

*p value was determined by chi square test. Values were expressed as frequency with percentage and within parenthesis percentage over column in total.

Table 7: Outcome distribution of the study participants (n=68).

Outcome variables	Group A (n=34)	Group B (n=34)	P value*
Induction to labour interval (hours)			
Mean±SD	6.32±2.16	16.06±5.59	0.00
Minimum-Maximum	4-12	10-36	
Induction to delivery interval (hours)			
Baseline	10 (29.4)	3 (8.8)	0.001
After 24	24 (70.6)	15 (44.1)	
After 48	0 (0.0)	13 (38.2)	
After 72	0 (0.0)	3 (8.8)	
Mean±SD	13.88±5.36	26.62±11.86	0.00
Minimum-Maximum	6-28	10-74	
	Mean±SD	**Mean±SD**	
Hospital stay	4.71±0.63	5.21±0.77	0.005
Dose of misoprostol	2.85±0.61	3.97±0.30	<0.001

*p value was determined by chi square test and independent Student's t-test. Values were expressed as frequency with percentage and mean±SD and within parenthesis percentage over column in total.

Table 8: Complications in the study participants up-to 72 hours follow up (n=68).

Complications	Group N (%)	Baseline	After 24 hours	After 48 hours	After 72 hours
PPH	Group A	0 (0)	0 (0)	0 (0)	0 (0)
	Group B	1 (2.9)	0 (0)	0 (0)	0 (0)
Retained placenta	Group A	1 (2.9)	1 (2.9)	0 (0)	0 (0)
	Group B	4 (11.8)	2 (5.9)	1 (2.9)	0 (0)
Hyperstimulation	Group A	1 (2.9)	1 (2.9)	0 (0)	0 (0)
	Group B	2 (5.9)	1 (2.9)	0 (0)	0 (0)
Gastro intestinal symptoms	Group A	1 (2.9)	1 (2.9)	1 (2.9)	0 (0)
	Group B	4 (11.8)	3 (8.8)	2 (5.9)	1 (2.9)

Table 9: Side effects in the study participants up-to 72 hours follow up (n=68).

Side effects	Group N (%)	Baseline	After 24 hours	After 48 hours	After 72 hours
Fever	Group A	11 (32.4)	8 (23.5)	6 (17.6)	1 (2.9)
	Group B	22 (64.7)	18 (52.9)	12 (35.3)	9 (26.5)
Nausea	Group A	6 (17.6)	5 (14.7)	1 (2.9)	0 (0)
	Group B	10 (29.4)	9 (26.5)	7 (20.6)	5 (14.7)
Vomiting	Group A	5 (14.7)	3 (8.8)	2 (5.9)	0 (0)
	Group B	9 (26.5)	7 (20.6)	5 (14.5)	2 (5.9)
Diarrhea	Group A	8 (23.5)	8 (23.5)	4 (11.8)	2 (5.9)
	Group B	13 (38.2)	9 (26.5)	6 (17.6)	5 (14.7)
Headache	Group A	5 (14.7)	4 (11.8)	3 (8.8)	0 (0)
	Group B	9 (26.5)	8 (23.5)	5 (14.7)	4 (11.8)

The comparison of complications between group A and group B shows slight differences. In group A, no cases of postpartum hemorrhage (PPH) and 2.9% in group B. Retained placenta occurred in 2.9% of cases in group A and 11.8% in group B. hyperstimulation occurred in 2.9% of cases in group A and 5.9% in group B. Gastrointestinal symptoms were reported in 2.9% of group A and 11.8% of group B. None of the complications reached statistical significance (p>0.05) (Table 6).

Group A exhibits a mean induction-to-labor interval of 6.32 hours (SD 2.16, range 4-12 hours), while group B shows a mean of 16.06 hours (SD 5.59, range 10-36 hours). The p value (0.00) confirms a statistically significant difference between groups. The induction-to-delivery interval differed significantly between groups (p=0.001). At baseline, 29.4% of group A and 8.8% of group B delivered. The proportion of deliveries increased over time, with 70.6% versus 44.1% after 24 hours, 0.0% versus 38.2% after 48 hours, and 0% versus 8.8% after 72 hours for Groups A and B, respectively.

The mean interval was 13.88 hours (SD 5.36, range 6-28 hours) in group A and 26.62 hours (SD 11.86, range 10-74 hours) in group B, with a statistically significant difference (p=0.00). Group A had a significantly shorter hospital stay (4.71±0.63 versus 5.21±0.77 days, p=0.005) and required a lower mean dose of misoprostol (2.85±0.61 versus 3.97±0.30, p<0.001) (Table 7).

Group A had no cases of postpartum hemorrhage (PPH), while group B reported 1 case (2.9%) at baseline, with no further cases. Retained placenta in group A decreased from 1 case (2.9%) at baseline and after 24 hours to no cases thereafter, whereas group B started with 4 cases (11.8%) at baseline, reduced to 2 cases (5.9%) after 24 hours, and further decreased to 1 case (2.9%) after 48 hours. Hyperstimulation in group A was 1 case (2.9%) at baseline and after 24 hours, reducing to none thereafter; in group B, it decreased from 2 cases (5.9%) at baseline to 1 case (2.9%) after 24 hours, with no further cases. Gastrointestinal symptoms in group A remained consistently low, with 1 case (2.9%) from baseline to 48 hours and none after 72 hours. In group B, these symptoms started at 4 cases (11.8%) at baseline and progressively declined to 3 cases (8.8%) after 24 hours, 2 cases (5.9%) after 48 hours, and 1 case (2.9%) after 72 hours. This trend indicates a gradual reduction in complications over time for both groups (Table 8).

Fever in group A decreased from 11 cases (32.4%) at baseline to 8 cases (23.5%) after 24 hours, 6 cases (17.6%) after 48 hours, and 1 case (2.9%) after 72 hours. In group B, fever showed a similar declining trend, starting at 22 cases (64.7%) at baseline, reducing to 18 cases (52.9%) after 24 hours, 12 cases (35.3%) after 48 hours, and 9 cases (26.5%) after 72 hours. Nausea in group A dropped from 6 cases (17.6%) at baseline to 5 cases (14.7%) after 24 hours, 1 case (2.9%) after 48 hours, and none after 72 hours. In group B, nausea decreased from 10 cases (29.4%) at baseline to 9 cases (26.5%) after 24 hours, 7 cases (20.6%) after 48 hours, and 5 cases (14.7%) after 72 hours. Vomiting in group A started at 5 cases (14.7%) at baseline and decreased to 3 cases (8.8%) after 24 hours, 2 cases (5.9%) after 48 hours, and none after 72 hours. Group B followed a similar trend, with 9 cases (26.5%) at baseline, declining to 7 cases (20.6%) after 24 hours, 5 cases (14.5%) after 48 hours, and 2 cases (5.9%) after 72 hours.

Diarrhea in group A remained consistent at 8 cases (23.5%) from baseline to 24 hours, then decreased to 4 cases (11.8%) after 48 hours and 2 cases (5.9%) after 72 hours. In group B, diarrhea declined from 13 cases (38.2%) at baseline to 9 cases (26.5%) after 24 hours, 6 cases (17.6%) after 48 hours, and 5 cases (14.7%) after 72 hours. Headache in group A decreased from 5 cases (14.7%) at baseline to 4 cases (11.8%) after 24 hours, 3 cases (8.8%) after 48 hours, and none after 72 hours, while group B showed a decline from 9 cases (26.5%) at baseline to 8 cases (23.5%) after 24 hours, 5 cases (14.7%) after 48 hours, and 4 cases (11.8%) after 72 hours (Table 9).

DISCUSSION

Induction of labor in cases of intrauterine fetal death (IUFD) is a standard obstetric intervention for appropriately selected patients. For women requiring labor induction due to IUFD, the process should ideally be straightforward, safe, effective, and minimally invasive. This study aimed to evaluate the effectiveness of combining mifepristone and misoprostol compared to the use of misoprostol alone in the induction of labor for IUFD cases.

In the current study, the mean age of participants was 25.32±5.04 years in the combined group and 23.82±4.53 years in the misoprostol group. The majority of participants were aged between 21 and 25 years, comprising 44.1% of the Combined group and 52.9% of the misoprostol group. There was no statistically significant difference between the groups (p>0.05). In educational status, monthly income there was no statistically significant difference between the groups (p>0.05). In a similar study by Panda et al., the mean age of participants in the combined group was higher than in the Misoprostol group; however, this difference was not statistically significant.[12]

In this study, the mean values for WBC, hemoglobin (Hb), platelet count, APTT, PT, were similar between group A and group B. Specifically, the mean WBC count was 7185.82±1580.49 (per mm^3) in group A and 7199.68±1720.04 (per mm^3) in group B. Hemoglobin levels were also comparable, averaging 11.90±2.03 (gm/dl) in group A and 11.97±2.18 (gm/dl) in group B. Group A had a mean platelet count of 272,647.06±56,155.02 per µl, while group B had 284,411.76±54,561.12 per µl. APTT was 27.50±2.72 (seconds) in group A and 27.53±2.72 (seconds) in group B, while PT was 11.54±0.58 (seconds) in group A and 11.72±0.62 (seconds) in group B. Statistical analysis showed no significant differences between the two groups for these parameters. In this study group A, 61.8% were 28-33 weeks, and 38.2% were 34-40 weeks; in group B, 58.8% were 28-33 weeks, and 41.2% were 34-40 weeks. The p value of 0.804 shows no significant difference between groups.

In Bishop score, at the 0-hour mark, the mean values for group A (1.71±0.49) and group B (1.83±0.41) were similar, with a p value of 0.646, indicating no significant difference between the groups at this initial time point. However, by 4 hours, group A demonstrated a significantly higher mean (8.0±0.76) compared to group B (5.45±0.93), with a p value of 0.001, suggesting a notable difference between the groups. This trend continued at 8 hours, where group A again had a significantly higher mean (11.08±0.95) than group B (6.43±0.53), with a p value of 0.001, further reinforcing the statistical significance of the difference observed between the two groups over time. A study conducted by Belani et al, showed that at admission, most women in both groups had

Bishop scores between 0 and 3.[2] In group I (combination group), 65% of women had preinduction Bishop scores between 4 and 6, while 60% of women in group II (misoprostol group) had scores between 0 and 3. After 12 hours, 60% of women in group I had a modified Bishop score >6, compared to 10% in group II, with a statistically significant difference.[2]

In this study, fever was more commonly reported in group B compared to group A, with a statistically significant difference (p=0.008). Other side effects, including nausea, vomiting, diarrhea, and headache, were also more frequent in group B but did not reach statistical significance (p>0.05). These findings are consistent with those of Islam et al, who reported fever, diarrhea, vomiting, and epigastric pain as the most common side effects, which aligns with the results observed in the present study.[13]

In the current study, the most common complications observed following induction of labor were postpartum hemorrhage (PPH), retained placenta, hyperstimulation, and gastrointestinal symptoms. These findings are consistent with those reported by Abbasi et al, who also documented similar complications in their investigation of labor induction.[9]

Group A demonstrated a significantly shorter induction-to-labor interval (6.32±2.16, range 4-12 hours) compared to group B (16.06±5.59, range 10-36 hours) (p=0.00). The induction-to-delivery interval showed a significant difference between the two groups (p=0.001). Initially, a higher proportion of deliveries occurred in group A (29.4%) compared to group B (8.8%). As labor progressed, the percentage of deliveries increased, reaching 70.6% in group A and 44.1% in group B after 24 hours. After 48 hours, all deliveries in group A had occurred, whereas 38.2% of group B had delivered, with an additional 8.8% completing delivery after 72 hours. The mean induction-to-delivery interval was notably shorter in group A (13.88±5.36 hours, range 6-28 hours) compared to group B (26.62±11.86 hours, range 10-74 hours), demonstrating a statistically significant difference (p=0.00). These findings suggest a more rapid progression of labor in group A, highlighting potential differences in response to induction protocols between the two groups. Similarly, Belani et al, reported a significantly shorter induction-to-labor interval in group I (combination group) (2.54±1.99 hours) compared to group II (misoprostol group) (7.24±6.42 hours).[2] Similarly, the induction-to-delivery interval was 9.22±8.45 hours in group I and 15.47±11.47 hours in group II, with a statistically significant difference.[2] In our study, group A also had a significantly shorter hospital stay (4.71 versus 5.21 days). The differences were statistically significant. In the present study, the mean dose of misoprostol was significantly lower in group A (2.85±0.61) compared to group B (3.97±0.30) (p<0.001). A study done by Hemlatha et al, the number of doses in group I (mifepristone and misoprostol) required was 1.52±1 and in group II (misoprostol only) was 2.76±1.05 which is similar to my study findings.[14] Similarly, Gupta et al observed the mean number of doses of misoprostol was 2.9±1.2 in group I and 4.2±1.3 in group II.[15] The mean number of doses was significantly (p<0.05) less in group I. Panda et al, showed the mean number of dose of misoprostol was 1.69±0.73 in combination group and 3.2±1.16 in misoprostol group.[12]

The comparison of complications between group A and group B revealed only minor differences. Group A had no cases of postpartum hemorrhage (PPH). Whereas group B had 1 case (2.9%) of each. Retained placenta occurred in 2.9% of group A and 11.8% of group B. Hyperstimulation occurs 2.9% in group A and 5.9% in group B. Gastrointestinal symptoms were reported in 2.9% of group A and 11.8% of group B. However, none of these differences were statistically significant (p>0.05). Similar findings were reported by Abbasi et al, who also observed fewer complications in patients treated with combined drugs, though these differences were not statistically significant.[9] In group A and group B revealed only minor differences. In comparison of side effects, group A had 11 cases (32.4%) of fever were group B had 22 cases (64.7%). Nausea occurred in 6 (17.6%) of group A and 10 (29.4%) in group B. Vomiting occurred in 5 (14.7%) in group A and 9 (26.5%) in group B. Diarrhoea occurred in 8(23.5%) in group A and 13 (38.2%) in group B. Headache occurred in 5 (14.7%) in group A and 9 (26.5%) in group B. Among the differences only fever showed statistically significant differences p<0.008. other side effects are not statistically significant p>0.05. These findings are consistent with those of other studies.[13,16,17]

The study was conducted at a single site, which may limit the generalizability of the findings to other settings or populations. The relatively small sample size. Post-delivery follow-up was limited to the immediate period, excluding long-term maternal health outcomes. The study primarily focused on clinical outcomes and did not extensively explore psychological or emotional aspects associated with IUFD management.

CONCLUSION

This study highlights the significant efficacy of the combined regimen of mifepristone and misoprostol compared to misoprostol alone for labor induction in intrauterine fetal death (IUFD). The combined regimen demonstrated shorter induction labour interval, induction-to-delivery intervals, reduced misoprostol dosage requirements short hospital stay and fewer side effects, offering a safer and more efficient approach to managing IUFD. These findings underscore the potential use of mifepristone and misoprostol as a preferred protocol for IUFD induction, ensuring better patient outcomes and reducing the burden of prolonged labor.

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