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A PROSPECTIVE STUDY TO EVALUATE THE EFFICACY OF SUBLINGUAL MISOPROSTOL TO REDUCE BLOOD LOSS DURING CESSARIAN SECTION

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KEYWORDS : Misoprostol, Safety, Efficacy, PPH

INTRODUCTION

PPH is the most dangerous and devasting condition, but also a preventable cause of maternal morbidity and mortality in the developing world.

Misoprostol have dose related side effects. Hence our study was performed with low dose of 600mcg to know the safety and efficacy of misoprostol in decreasing blood loss in caesarean section.

The rapid onset and longer duration of action for sublingual misoprostol within the circulation may be responsible for reduction in intraoperative and postoperative blood loss. Inspite of the possibilities of these routes, sublingual route is preferred due to lesser side effects, easy administration, increased compliance and comparable efficacy compared to other routes. The adverse effects of misoprostol like nausea, vomiting, diarrhoea, fever, and chills are dose dependent. The recommended dose for the prevention of PPH is 600mcg

Aims & Objectives

Aim

Aim of study was to assess the efficacy of sublingual Misoprostol in decreasing blood loss during caessarian section.

Objective

1. To study the efficacy of sublingual misoprostol in reduce blood loss during caessarian section and need for blood transfusion.
2. To study the need for additional uterotonic agents and postoperative Hb fall and duration of hospitalization periods.
3. To study the side effects of misoprostol- shivering, pyrexia, nausea, vomiting

MATERIAL AND METHODS USED

Women undergoing lower segment caesarean section in department of obstetrics and gynaecology SMS MEDICAL COLLAGE, JAIPUR based on inclusion and exclusion criteria.

Source Of Study: Hospital

Study Design: Randomised controlled trial.

Study Period: July 2023 to August 2024.

- **Study Population:** Patients undergoing lower segment caesarean section in department of OBG at SMS MEDICAL COLLAGE JAIPUR

Inclusion Criteria:

1. Patients plan for cessarian section in reproductive age group will be included.
2. Women giving informed and written consent for study.
3. Women not participating in any other studies.

Exclusion Criteria:

1. Women known to have hypersensitivity to prostaglandin.
2. Medical contraindications for prostaglandin.
3. Women not consenting for trial.

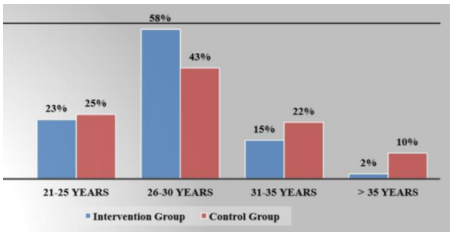
Data Analysis And Interpretation

Primary Outcomes

S.No	Variable	Intervention Group (Mean ± SD)	Control Group (Mean ± SD)	p-value
1	Intra-op blood loss	254.70 ± 45.091	300.60 ± 53.500	< 0.001*
2	Postop blood loss	153.30 ± 23.828	154.00 ± 28.213	0.850
3	Preop Hb	11.783 ± 1.0728	11.384 ± 1.0619	0.009*
4	Postop Hb	11.444 ± 1.0552	11.128 ± 1.0907	0.039*
5	Preop PCV	36.286 ± 3.0894	35.714 ± 3.0835	0.192
6	Postop PCV	35.072 ± 2.9305	34.949 ± 3.3079	0.781

These results provide insights into the effectiveness of the intervention based on differences in clinical outcomes such as blood loss and haemoglobin levels between the two groups. Significant differences highlight areas where the intervention may have influenced outcomes by reducing intraoperative blood loss, whereas non-significant differences indicate comparable outcomes between the groups for those parameter. None of the patients in the study group have experienced side effects of misoprostol.

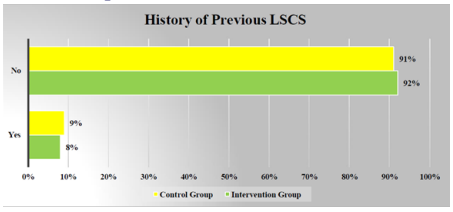
Side Effects Observed Among Study Groups



Intervention Group- Out of 100 individuals, 10 complain of nausea, 4 vomiting, 10 shivering, 4 pyrexia.

Control Group- out of another 100 individuals, 2 complain of nausea, 4 shivering, 1 pyrexia

Distribution Of Previous LSCS Among Intervention Group And Control Group



Intervention Group: Out of 100 individuals, 8 had a previous lower segment caesarean section, and 92 did not.

Control Group: Out of another 100 individuals, 9 had a previous lower segment caesarean section, and 91 did not.

DISCUSSION

In the study, among the intervention group majority of the study participants were 26-30 years old (58%), followed by 23% were 21-25 years. Among the control group, most of the study participants were 26-30 years (43%), and 25% were 21-25 years. Kumari et al and Karya U et al also described that most of the participants were 21 to 25 years.

The current study aimed to evaluate the effectiveness of preoperative sublingual misoprostol in reducing intraoperative and postoperative blood loss during lower segment caesarean section (LSCS).

Intraoperative blood loss, a critical parameter in caesarean sections (CS), was rigorously assessed in our study to evaluate the efficacy of preoperative sublingual misoprostol administration. Our findings indicate a statistically significant reduction in mean intraoperative blood loss among participants who received misoprostol compared to those in the control group. Specifically, the misoprostol group exhibited a mean blood loss of 254.70 ± 45.091ml, whereas the control group had a higher mean blood loss of 300.60 ± 53.500ml ($p < 0.001$). This outcome underscores the beneficial impact of misoprostol in mitigating blood loss during the surgical procedure, which is crucial for minimizing maternal morbidity associated with haemorrhagic complications.

Assessing changes in haemoglobin (Hb) and haematocrit (Hct) values provides critical insights into the impact of interventions such as preoperative sublingual misoprostol on maternal blood volume and erythrocyte status following caesarean sections (CS). our study, showed the mean preoperative haemoglobin level was significantly higher in the Intervention Group (11.783 g/dL ± 1.0728) compared to the Control Group (11.384 g/dL ± 1.0619), with a significant p-value (0.009). Similarly, the mean postoperative haemoglobin level was significantly higher in the Intervention Group (11.444 g/dL ± 1.0552) compared to the Control Group (11.128 g/dL ± 1.0907), with a significant p-value (0.039). This finding suggests that misoprostol administration may help mitigate the decrease in Hb levels post-caesarean delivery, reflecting a potentially beneficial effect on maternal blood conservation.

Similarly, changes in haematocrit (Hct) values were notably less pronounced in the study group compared to the control group. There was no significant difference in mean preoperative packed cell volume between the Intervention Group (36.286% ± 3.0894) and the Control Group (35.714% ± 3.0835), indicated by a non-significant p-value (0.192). Similarly, there was no significant difference in mean postoperative packed cell volume between the Intervention Group (35.072% ± 2.9305) and the Control Group (34.949% ± 3.3079), with a non-significant p-value (0.781). Kumari et al. (2021) reported a similar reduction in the difference between preoperative and postoperative Hb levels in the misoprostol group compared to the control group (Kumari et al., 2021). Additionally, Elsedeek et al. (2012) demonstrated a significant difference in the fall of Hct levels between women who received preoperative misoprostol and those who did not, underscoring the haematological benefits of misoprostol administration in the perioperative period (Elsedeek et al., 2012).

CONCLUSION

The present study was done to evaluate the effect of preoperative sublingual misoprostol in reducing blood loss during caesarean section, and it concluded that there is a significant reduction in intraoperative blood loss. Misoprostol was chosen in this study, because it is easily available, longer shelf life, stable at room temperature and can be easily administered. Higher dose of misoprostol is associated with more side effects, so lowest dose of 600mcg was used in this study. Some of the participants in the study group experienced miner side effects(vomiting,shivering,nausea,pyrexia). Sublingual route is preferred due to fast absorption, higher peak levels, sustained effect, fewer side effects and increased compliance. The mean Tmax for sublingual misoprostol is 30 minutes. So if it is kept SL immediately after anaesthesia, the maximum effect of misoprostol is obtained by the end of the caesarean section. Hence it is preventing PPH and thereby it reduces postpartum anaemia andits related complications like sub- involution, sepsis and maternal mortality. Compared to other uterotonics, misoprostol is the ideal drug for PPH especially in low-income setup.

REFERENCES

1. Siwatch S, Kalra J, Bagga R, Jain V. Sublingual vs Vaginal Misoprostol for Labor Induction. J Postgrad Med Edu Res. 2012;46(3):138-43.
2. Hayman RG, Arulkumaran S, Steer PJ. Uterine compression sutures: surgical management of postpartum hemorrhage. Obstet Gynecol. 2002;99(3):502-6.
3. Kumar SA, Sanjay S, Sublingual Misoprostol to Reduce Blood Loss at Cesarean Delivery. The Journal of Obstetrics and Gynecology of India. March-April 2012; 62(2):162-167.
4. Acharya G, Al-Sammarai MT, Patel N, et al. A randomized, controlled trial comparing effect of oral misoprostol and intravenous syntocinon on intra-operative blood loss during cesarean section. Acta Obstet Gynecol Scand. 2001;80:245–250. doi: 10.1034/j.1600-0412.2001.080003245.x.
5. Ahmed T, Rohtagi R, Priyadarshini V. Study on use of Sublingual Misoprostol to Reduce Blood Loss at Caesarean Delivery in Tertiary Care Centre. Journal of Medical Science and Clinical Research. June 2017;5(6):23192-23196.
6. Kumari KA, Swathi E, Saranu S. Impact of pre-operative 200 µg (P/R) per rectal misoprostol on blood loss during and after Cesarean delivery. International Association of Infant Massage. 2016 Jun 1;3:49-58.
7. Maged AM, Helal OM, Elsherbini MM, Eid MM, Elkomy RO, Dahab S, Elsissy MH. A randomized placebo-controlled trial of preoperative tranexamic acid among women undergoing elective cesarean delivery. International Journal of Gynecology & Obstetrics. 2015 Dec 1;131(3):265-8.
8. Ajah LO, Ajah MI, Ezegwui HU, Nwankwo TO, Iyoke CA, Nwigboji WN. Preoperative versus postoperative misoprostol use for prevention of blood loss during caesarean section in pregnant women at term: a multi-centre randomised controlled trial. Journal of International Medical Research. 2023 Nov;51(11):03000605231213242.