Misoprostol and Third Stage of Labour

Asok Ray, Partha Mukherjee, Gita Basu, Alokendu Chatterjee

Department of Obstetrics & Gynaecology, N.R.S. Medical College, Calcutta

Summary

Misoprostol is a PGF_1 analogue which is orally active, rapidly absorbed and has an effective uterotonic action. This study was done to observe effectiveness of oral misoprostol (400mg) in routine management of third stage of labour and compare it with Inj. Methyl ergometrine. Both drugs were given following delivery of anterior shoulder of the baby. 100 cases in study group received misoprostol and 100 cases in control group received Inj. Methyl ergometrine. Duration of third stage, amount of bleeding, additional oxytocic requirement and blood transfusion all were less in study group. Side effects were negligible in study group and there was no need of manual removal of placenta in this group. So misoprostol has potential benefit in management of third stage of labour with very little disadvantages of conventional oxytocics.

Introduction

Third stage of labour is known to have unexpected morbidity and mortality mainly due to post-partum haemorrhage (P.P.H.). About 1,00,000 women die due to P.P.H. annually globally. Inspite of using oxytocics P.P.H. is responsible for 50% of all haemorrhagic deaths and of all cases of haemorrhagic deaths 80% are due to atonic uterus which is dramatic catastrophic and kills swiftly. It is preventable in majority of cases. Oxytocics like oxytocin and ergometrine are now used routinely and are associated with significant reduction in P.P.H. (Elbourne et al, 1988; Prendiville and Elbourne, 1996). But use of these drugs has various problems. It requires storage at 2° to 8° C and must be protected from light (Data Sheet Compendium, 1993; Prendiville and Elbourne, 1989). Ergometrine looses 90% potency after one year storage at 21° to 25° C (Hogerzeil et al, 1993) and it is contraindicated in hypertensive patients.

Prostaglandin F_2 alpha (PGF_2a) is known to be useful in management of P.P.H. All these drugs have to be used parenterally and chance of Hep B, Hep C and HIV are there unless sterile disposable syringes and needles are used. Misoprostol is an analogue of PGE and was marketed for use in prevention and or treatment of peptic ulcer. It is orally effective, rapidly absorbed, is detected in the circulation within 2 minutes and stable at room temperature. It has been shown to be an effective myometrial stimulant (Norman et al, 1991, Windrim et al, 1997) and has minimal side effects.

Object

The aim of the present study was to observe effectiveness of misoprostol (400 mg) administered orally in routine management of third stage of labour and compare it with Inj. Methyl ergometrine.

Materials and Methods

A double blind randomized trial was done at N.R.S. Medical College & Hospital, Calcutta. Two hundred parturient women were selected and divided into two groups, 100 in study group and 100 in control

group. Patients were selected according to exclusion criteria given in Table-I. Study group of patients received 2 tabs 200 mg of misoprostol each orally and control group received Inj. Methyl ergometrine both following delivery of anterior shoulder of the baby. Placenta was delivered by controlled cord traction. Blood loss was estimated clinically for 2 hours following delivery of placenta. A record was kept of Hb% before labour and 30 hours after delivery and also of pulse and blood pressure (B.P.). Because conventional oxytocics were not given in study group, patients were very closely observed and oxytocics and blood transfusion were given immediately when bleeding was considered to be more than usual in both groups and recorded.

Table-I
Exclusion criteria

Obstetrics	Non obstetrics
Gestational age < 32 weeks	H/O Asthma Epilepsy
Prolonged labour	Heart / Kidney disorder
A.P.H.	Coagulation disorder
Pre-eclampsia	Anaemia
IUFD	
Multiple pregnancy	
Elective C.S. cases	

Results

Efficacy of misoprostol in management of third stage of labour in reduction of atonic P.P.H. were studied and compared with that of oxytocics (Table-II). Duration of third stage was slightly less in the study group. Additional oxytocics were required in 5 cases in control group but only in 2 cases in study group. Blood transfusion was given in 1 case in the study group compared to 3 cases in the control group. Average fall of blood pressure was definitely less in study group. There were no need of manual removal of placenta and no rise of B.P. and vomiting in study group. We could not recognize any unpleasant side effect in study group. So, misoprostol has potential benefit in management of third stage of labour with very little disadvantages of conventional oxytocics.

Table II
Main Outcome measures of Misoprostol STU

	Misoprostol group (n-100)	Study group (n-100)
Duration of 3rd stage	2.4 mins	3-5 mins
Additional oxytocics	2 cases	5 cases
Blood transfusion	1 case	3 cases
Average fall of Hb%	0.5gm%	1.4gm%
Incidence of retained placenta	Nil	One
Post partum rise of Blood pressure	Nil	5 cases

Discussion

Our study shows that misoprostol has definite role in minimizing P.P.H. It has advantages over methyl ergometrine in relation to duration of third stage of labour, additional oxytocics, manual removal of placenta and other side effects like rise of B.P., nausea, vomiting etc. Hofmeyr et al (1998) found that misoprostol is promising as a method of preventing P.P.H. According to Retacy et al (1997) misoprostol may be effective in the prevention of P.P.H. and has few side effects. Bamigboyee et al (1998) used rectal misoprostol and compared it with syntometrine for management of third stage of labour. They found similar effect in P.P.H. and duration of third stage but post-partum diastolic hypertension was more common in the syntometrine group.

Conclusion

This study suggests that misoprostol has great potential in preventing P.P.H. It can be easily stored and easily administered with few side effects. If this drug will have to be made available to the TBAs who supervise the majority of births in India, many women's lives can be saved in our country. But again a large randomized trial of misoprostol is needed before proper use of this drug can be recommended.

References

1. Bamigboyee A.A, Merell P.A, Hofmeyr G.J, Mitchell R.: Acta Obstet Gynecol Scand 77: 178, 1998.
2. Data Sheet Compendium - A.B.P.I. Data sheet Compendium. London. Datapharm Publications Ltd., 1993.
3. Elbourne D, Prendiville W., Chalmers I.: Br J Obstet Gynaecol 95: 17, 1988.
4. Hofmeyr G Justus, V Chery I.N, Marinda de J, Bradley R.G.: Br J Obst Gynaecol 105: 971; 1998.
5. Hogerzeil H.V., Walker G.J.A, de Goeje M.F: Stability of injectable oxytocics in Tropical Climates. Geneva WHO, 1993.
6. Retacy Hazem El, Pat O'Brien, Wale M, Jane W, Charles R: Br J Obst Gyn 104: 336, 1997.
7. Norman JE, Thong KJ, Baird DT: Lancet 338: 1233, 1991.
8. Prendiville W, Elbourne D.: Care during the third stage of labour. In: Chalmers I, Enkin M, Keirse MJNC, editors. Effective care in pregnancy and Child birth. Oxford: Oxford University Press, 1989.
9. Prendiville WJ: Eur J Obst Gyn Reprod Biol 69: 19, 1996.
10. Windrrim R., Bennet K., Mundle W., Young D.C.: Obstet Gynaecol 89: 392, 1997.