PROPHYLACTIC USE OF INTRAMUSCULAR 15-METHYL PROSTAGLANDIN F_2 ALPHA AND METHYL ERGOMETRINE IN THE III STAGE OF LABOUR: A COMPARATIVE STUDY

by

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The availability of powerful uterotonic agents such as oxytocin and erogometrine has contributed a great deal to the prevention of mortality and morbidity due to post partum hemorrhages. Prostaglandins are a new group of compounds which are derivatives of prostanoic acid and are chemically 20 carbohydroxy fatty acids. Prostaglandin E_2 and F_2 (Alpha) are considered to be physiological stimulants of myometrial activity and have been used in obstetrics for induction of labour and abortion. Of these, 15 methyl-PG F_2 alpha is now available for intramuscular use as Prostin 15-M.

Aim of Study

Stimulated by the encouraging work of Kerekes and Domokes (1978) in Hungary using intra-myometrial injections of PG F_2 alpha in third stage of labour and other groups using PG E_2 vaginal suppositories for uterine atony, we undertook this study in the Government Raja Mirasdar Hospital attached to Thanjavur Medical College. The aim of this study was to find out the blood loss in the third stage of labour using intramuscular 15 Methyl PG F_2 alpha and compare it with intravenous methergin.

Methodology and Material

All cases who delivered vaginally in the labour ward during a period of 16 days were taken for the study. Odd numbers were given 0.4 mgs. of methergin intravenously and even numbers were given Prostin 15-M, 125 micrograms intramuscularly when the anterior shoulder was being delivered. Severe anaemia, organic heart disases, asthma, hypertension, P.E.T. and cases with previous uterine scar were excluded from this study. Fifty cases were allocated to each group. A group of 50 parturients who did not receive any drug and the ergometrine group served as control. The time taken for placental separation from the time the injection was given and duration of third stage were noted and the placenta was delivered by the Brandt-Andrew's technique. The blood loss in the third stage and two hours postpartum was collected and measured separately in sterile containers kept near the perineum. The placent was carefully freed of retroplacental clots which were added to the container before measuring the

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volume. Adverse reactions such as vomiting, diarrhoea, fever, flush etc. were recorded.

Results

The parity, mode of delivery and duration of labour were comparable in the three groups as shown in Table I.

Regarding side effects, there was rise of B.P. in 1 case of methergin group. In the prostin 15-M group, 2 patients had vomiting twice and there was no nausea, diarrhoea, headache or rise of blood pressure.

Comments

This study reveals that a significant reduction in the durartion of III stage and blood loss can be achieved in parturients by giving a single injection of 125 micrograms of 15 Methyl PG F2 alpha intramuscularly when the anterior shoulder is being delivered. As shown in Table II, the mean third stage was 4.8 minutes in Prostin-M group, 7.5 in methergin group and 12.9 in the group who did not receive any medication. Similarly, the blood loss at delivery and 2 hours post-partum also showed a significant reduction in Prostin group as compared to methergin and the group with no drugs. No trapping or incarceration of the placenta was observed. Corson and Bolognese (1977) reported for the first time on the efficacy of intramuscular 15-Methyl PG F2 alpha for the control of refractory atonic post-partum hemorrhage and pointed out that systemic

TABLE I
Parity, Mode of Delivery and Duration of Labour

	No drug group (n = 50)	Prostin 15-M group (n = 50)	Methergin group (n = 50)
Nulliparae	22	20	20
Multiparae	28	30	30
Mode of delivery			
Normal labour	38	37	38
Forceps/vacuum	12	13	12
Duration of labour (hrs.)			
Nulliparae	9.93	12.1	11.8
Multiparae	7.20	8.0	7.9

TABLE II
Duration of Third Stage & Blood Loss

	No drug group (n = 50)	Prostin 15-M group (n = 50)	Methergin group (n = 50)
Mean duration of III Stage in minutes	12.9	4.8	7.5
Mean blood loss at delivery in Ml	283	99.8	140.5
Mean blood loss at two hours post-partum in Ml	163	27.4	80.8

administration results in therapeutic levels in the myometrial cells. After intramuscular injection of Prostin 15-M, the peak plasma levels are reached within about 15 minutes and rapid decrease to pre-injection levels is observed in 2-3 hours. The increased tonus and contractility which persists beyond 2 hours with a single injection of Prostin 15-M is explained by the fact that the impact provoked by intramuscular injection is capable of stimulating further endogenous prostaglandin synthesis.

The side effects were not troublesome and in the dosage used in this study only vomiting occurred twice in two patients. It can be given intramuscularly and hence easy to administer.

Conclusion

The present study has established the safety and efficacy of 1, Methyl-PG F2 alpha when given intramuscularly in a dose of 125 micrograms (0.5 M1) with the delivery of the anterior shoulder and has even superior efficacy as compared to methergin.

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