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Comparative study of Ethacridine Lactate and Prostaglandin E2 (intracervical gel) in second trimester pregnancy termination

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Abstract:
Background: *A reliable & safe method of mid trimester pregnancy termination is very essential. Present study was undertaken to compare the efficacy of prostaglandin E2 gel and Ethacridine lactate in induction of second trimester pregnancy termination.*
Methodology: *25 patients were subjected to termination of pregnancy by extra-amniotic instillation of 0.1% ethacridine lactate and 25 patients to intracervical PGE2 gel application. All were admitted to hospital and evaluated for fitness by detailed history taking, general physical examination and systemic examination.*
Results: *Mean induction abortion interval in the ethacridine lactate group was 27.76 hours and in PGE2 group was 14.2 hours. Failure rate was more in ethacridine lactate group (16 %) as compared to PGE2 group (4 %). The incidence of complication was more in ethacridine lactate group as compared to PGE2 group. Incomplete abortions were more in ethacridine lactate group (28 %) as compared to PGE2 group (4 %).*
Conclusion: *Intracervical PGE2 gel is more sure, effective and quicker method of midtrimester pregnancy termination as compared to ethacridine lactate.*
Keywords: *ethacridine lactate, prostaglandin E2, second trimester, pregnancy*

I. Introduction

Abortion as a method of limiting birth has been practiced by human race since thousands of years. Ideally all terminations should be achieved in the first trimester. Nonetheless the need for mid trimester termination of pregnancy still exists and is likely to continue for many reasons.

About 15% of women seek medical termination of pregnancy during the second trimester (1). A number of methods are being tried to find a safe, effective and reliable method. A reliable & safe method of mid trimester pregnancy termination is very essential. The method should be simple which can be used with minimum medical staff (2).

Transvaginal extra amniotic instillation of 0.1% ethacridine lactate or intracervical application of prostaglandin E2 gel for midtrimester pregnancy termination may be such a method because it is easy, safe and effective (3).

Hence this study is undertaken to compare the efficacy of prostaglandin E2 gel and Ethacridine lactate in induction of second trimester pregnancy termination in terms of induction – abortion interval.

II. Material And Methods

The study was conducted in the Department of Obstetrics and Gynaecology, Jaipuria Hospital, attached to Rajasthan University of Health Sciences, Jaipur. It included total 50 women seeking mid trimester pregnancy termination during the year 2014.

25 patients were subjected to termination of pregnancy by extra-amniotic instillation of 0.1% ethacridine lactate with or without oxytocin augmentation and 25 patients to intracervical PGE2 gel application.

Criteria for inclusion in study were; women with pregnancy of 13 – 28 weeks having intrauterine fetal death , malformed fetus , severe IUGR , chromosomal anomalies and medical , social , eugenic causes.

Criteria for exclusion from study were; history or evidence of impaired renal or hepatic function, history of asthma, placenta previa, pregnancy with pelvic inflammatory disease, impaired cardiac or respiratory functions, raised intra-ocular pressure, uterine anomaly, history of any surgery of uterus.

All these women were admitted to hospital and were clinically evaluated for fitness to undergo abortion by detailed history taking, general physical examination and systemic examination to rule out any disease. Relevant routine laboratory tests done were hemoglobin estimation, blood group and Rh typing, urine analysis, bleeding time, clotting time and clot retraction time were also carried out in all the patients.

Before instituting treatment, informed and written consent of the patient and in case of minor, of her parents were taken.

In 25 patients, extra-amniotic instillation of 0.1% ethacridine lactate was given.

In 25 patients, intracervical PGE2 gel was applied. The patients were monitored regularly for vital signs, pain, uterine action, vaginal bleeding and expulsion of products of conception and side effects. Pelvic examination was performed after expulsion of the products of conception to ascertain the completeness of abortion. Dilatation and curettage was done in patients where abortion was incomplete.

III. Results

Table 1: Induction - Abortion interval (IAI) in cases with successful abortion

Method	Total no. of cases	Induction - Abortion interval (IAI) (in hours)											
		<6 hrs		6 - 12		13 -18		19 -24		25 -30		Upto48	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Ethacridine lactate	25	_	_	1	4	2	8	5	20	7	28	6	24
PGE2 gel (intracervical)	25	2	8	7	28	7	28	4	16	3	12	1	4

The above table shows that induction abortion interval was shorter with PGE2, 36% patients aborted within 12 hours including 8% who aborted within 6 hours, another 7 cases i.e. 28% aborted in18 hours, 16% in 24 hours, 12% within 30 hours, 4% within 48 hours while in ethacridine lactate group 4% aborted within 12 hours, 8% within 18 hours, 20% within 24 hours, 28% within 30 hours and 24% in 48 hours.Mean induction – abortion interval was 27.76 hours with ethacridine lactate while it was only 14.2 hours with PGE2.There were 4 (16%) patients in ethacridine lactate group who failed to abort within 48 hours while in PGE2 group only 1 (4%) patient failed to abort within the same time.

Table 2: Comparison of cumulative induction abortion interval

Cumulative induction abortion interval (in hours)	Ethacridine lactate		PGE2 (intracervical)	
	No.	Percentage	No.	Percentage
6	_	_	2	8%
12	1	4%	9	36%
18	3	12%	16	64%
24	8	32%	22	88%
30	15	60%	23	92%
48	21	84%	24	96%
Failed	4	16%	1	4%

The above table shows that induction abortion interval was very short with PGE2 group. In this group maximum no. i.e.88% aborted within 24 hours while in ethacridine lactate group only 32% cases aborted within 24 hours and in 48 hours 84% cases aborted

Table 3: Comparison of cases showing side effects and complications

Side effect / Complication	Ethacridine lactate	PGE2 gel (intracervical)
1.Incomplete abortion	7(28%)	1(4%)
2.Nausea/Vomiting	_	1(4%)
3.Diarrhea	_	_
4.Fever	_	_
5.Flushing	_	_
6.Cervical tear	_	1(4%)
7.Excessive bleeding	_	1(4%)
8.Perforation	_	_
9.Sepsis	_	_

The above table shows that the incidence of excessive bleeding, cervical tear and incomplete abortion was 4% each in PGE2 group while incidence of incomplete abortion was 28% in ethacridine lactate group. Incidence of GIT symptoms like nausea, vomiting was 4% in PGE2 group while in ethacridine group no GIT symptoms were seen.

Table 4: Distribution of cases according to success rate

	Cases	Complete	Incomplete	Failed
Ethacridine lactate	25	14(56%)	7(28%)	4(16%)
PGE2 (intracervical)	25	23(92%)	1(4%)	1(4%)

The above table shows that in Ethacridine lactate group 14(56%) patients had complete abortion,7(28%) had incomplete and 4(16%) cases failed while in PGE2 group 23(92%) cases had complete abortion,1(4%) case had incomplete abortion and only 1(4%) case failed to abort within 48 hrs.

Table 5: Comparison of success rate, mean induction abortion interval range, failed abortions and complications in the two groups

Features	Ethacridine lactate No.	%	PGE2 gel (intracervical) No.	%
1. Successrate (abortions within 48hrs)	21	84	24	96
2. Mean IAI range (in hours)	12 - 47 hours		4 - 30.45 hours	
3. No. of failed abortions	4	16	1	4
4. Complications & side effects	7	28	4	16

The above table shows that success rate in ethacridine lactate group was 21(84%) while in PGE2 group it was 24(96%). Mean IAI range was 12-47 hours in ethacridine lactate group while in PGE2 group it was 4-30.45 hours. In ethacridine lactate group 4 (16%) failed to abort within 48 hours while in PGE2 group only 1 (4%) patient failed to abort .In ethacridine lactate complications and side effects were seen in 7 (28%) cases and in PGE2 group it was in 4(16%) cases.

IV. Discussion

The present study aims at comparing the two methods in order to find out a safe, effective and easy method of termination of pregnancy in mid-trimester.

Induction abortion interval is defined as the time from the instillation of the abortifacient solution / gel to the time of complete expulsion of the fetus. In our study, in ethacridine lactate group only 32% patients aborted within 24 hours while in PGE2 group 80% of cases aborted within same time. Mean IAI with ethacridine lactate was 27.76 hours and in PGE2 mean IAI was 14.2 hours. In ethacridine lactate group our results are comparable to Edelman et al (1976) – mean IAI was 24 hours. In PGE2 group, our results are comparable to study of Magne et al (1998) who reported mean IAI of 14.8 hours while our results differ from the study of Goenka et al (1987) and Gupta et al (1999); the mean IAI was 9.5 hours and 6 – 12 hours respectively in their studies (4,5). This could be due to the fact that they calculated IAI from 1st dose of injection prostodin where prostodin injection was given after priming of cervix by laminaria tent in former and by instillating cerviprime gel into cervical canal in later.

The incidence of complication in our study with the ethacridine lactate group was 28% as compared to PGE2 (16%). In our study there was no case of post abortal fever, dyspnoea, flushing, sepsis, perforation or maternal deaths in ethacridine lactate group as well as PGE2 group. In PGE2 group there was nausea - vomiting, cervical tear, excessive bleeding in 1(4%) each respectively.

In our study the success rate in ethacridine lactate group was 84% and 4 patients (16%) failed to abort within 48 hrs. In PGE2 group success rate was 96% and 1 patient (4%) failed to abort within 48 hrs. In the ethacridine lactate group comparable results were obtained by Anjanyulu et al (1977) 81.4% and comparatively lower success rate was achieved by Ananthakrishnan et al (1978) 73.3% and comparatively higher success rate was achieved by Nabriski et al (1971) 93%, Ingemanson et al (1973) 94%, Manabe (1969) 100% and Sinha et al (1975) 100% (6, 7, 8, 9). In the PGE2 group our results are comparable to J. Sinha et al (1985) 92.4%, Goenka M.L. et al (1987) showed success rate 100%, Biswas A. et al (1995) shows 97.5% success rate, Yadav S. et al (1995) 97.3%, Magne V. et al (1998) 100%, Gupta S. et al (1999) demonstrated a success rate of 100% (10).

In our study in the ethacridine lactate group 7 patients had incomplete abortion in all of whom evacuation was done. Incidence of incomplete abortion with ethacridine lactate in our study (28%) is comparable to the series of Rajan et al (1978) 30.0%, Ananthakrishnan (1978) 18.8%, Vohra et al (1981) 16% (11). Comparatively lower incidence of incomplete abortion was observed by Nabriski et al (1971) 3.8%, Sinha et al 4%, Anjaneyulu et al (1977) 7.4%. However Ingemanson (1973) in his series reported 6% of incomplete abortion. In PGE2 only 1(4%) had incomplete abortion in which placenta was removed by sponge holding forceps under IV sedation.

Method failure is when the patient fails to abort within a specific time i.e. within 48 hours in the present series. In our study there were 4(16%) cases of failure in ethacridine lactate group. All were managed by dilatation and curettage. In PGE2 group 1(4%) failed to abort which was managed by ethacridine lactate instillation followed by syntocinon drip. In ethacridine lactate group our results are comparable to Ananthakrishnan et al (1977) who reported 21.4% failure with ethacridine lactate but our results differ from studies of Manabe (1969), Ingemanson (1973), Sinha (1976) and Sinha et al (1978) with success rate 100% and Rastogi et al (1981) with success rate 98% (12).

V. Conclusion

Intracervical PGE2 gel is more sure, effective and quicker method of midtrimester pregnancy termination as compared to ethacridine lactate. It is readily available, simple technique, is non invasive, avoids repeated monitoring and also applicable to patients with previous LSCS and ruptured membranes.

References

[1]. Park's Text book of Preventive and Social Medicine 15th ed. "Demography and Family Planning" pp 315.
[2]. Alwani M. C., Gogte G.S. and Purendare N.V. Termination of second trimester pregnancy: Journal of Obst. & Gyn. of India Vol. 25, 180 Feb. – Dec., 1975.
[3]. TeLinde's Operative Gynaecology. 8th Edition 1996, Management of abortion, 477 – 97.
[4]. Magne V., Bichile Lalita. PGs use (PGE2 gel + inj. PGF2 alpha) for second trimester termination of pregnancy HX1/ 30/ M/ 4 Abstracts of free communication papers and posters 42nd All India Congress of Obstetrics and Gynaecology, Hyderabad, Dec. 28 – 30, 1998.
[5]. Gupta S., Bhatra R., Smriti K. Singh. A study on the role of PGE2 gel in first and second trimester abortions. Journal of Obst. & Gyn. India 49, 60-66, Feb. 1999.
[6]. Anjaneyulu R., Dani P.S. Extra-amniotic injection of ethacridine lactate for termination of pregnancy in 2nd trimester: Journal of Obst. & Gyn. of India Vol. 27, No. 1, Feb., 1977 page 30.
[7]. Ananthakrishnan R., Companiwalla R., Raote B.Veena, Gogte G.S., Krishna R. Usha and Purendare N.V. Ethacridine lactate in second trimester abortion: Journal of Obst. & Gyn. of India Vol. 28, 796, 1978.
[8]. Nabriski A.S., Kalmanovitch K., Lebel R., Bodman U. Extraovular transcervical injection of rivanol for interruption of pregnancy: Am. Journal of Obst. & Gyn. Vol. 110, pp 54, May – Aug. 1971.
[9]. Manabe Yukio. Abortion in mid pregnancy by extraovular instillation of rivanol solution correlated with placental function: Am. Journal of Obst. & Gyn. Vol. 103, 232, Jan. – Apr., 1969.
[10]. Biswas A., Roy S. A Comparative study of the efficacy and safety of synthetic PGE2 derivative and 15 –methyl PGF2 alpha in the termination of mid trimester pregnancy: Journal Indian Med. Assoc. 1996 Aug. 94(8). 292-3.
[11]. Rajan R., Subhadra Nair M., Sarda K.A., John Rosamma and Usha devi L. Scope of extraovular rivanol in artificial abortion at mid-trimester: Journal of Obst. & Gyn. of India Vol.20, 523, 1978.
[12]. Rastogi K., Tondon S., Singh K.V., Singh N.S. Extra-amniotic injection of ethacridine lactate for termination of pregnancy in second trimester: Journal of Obst. & Gyn. of India Vol. 31, No. 1, 26, 1981.