

# A COMPARATIVE STUDY OF PROSTAGLANDIN AND 40% UREA FOR MID-TRIMESTER ABORTION

by

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## Introduction

After liberalisation of Abortion Law in our country in 1972, large number of women are coming to terminate unwanted pregnancies. This has further initiated a great interest in the search of a simple, safe, effective method. In the first trimester, the vacuum aspiration has been proved to be the best procedure of terminating the pregnancy, but this procedure is not safe in the second trimester. Till recently abdominal hysterotomy was considered to be the safest method of terminating second trimester pregnancy, but due to scar in the uterus, it is seldom practiced now a days. Hypertonic solutions and prostaglandin have been tried successfully by various authors. In the present study a comparison has been made to evaluate the efficacy and safety of 40% Urea Solution and prostaglandin for procuring mid-trimester abortion.

## Material and Method

Three hundred and twenty-eight women who were admitted for termination of pregnancy from 12 to 24 weeks gestation were selected for this study.

Out of 328, 144 were given prostaglandin in G.S.V.M. Medical College, Kanpur. Out of 144, 30 cases were given intra-amniotic prostaglandin, 94 cases were given extra-amniotic prostaglandin  $\text{PGF}_2$  £ and 20 were given intramuscular Prostaglandin.

Intra-amniotic prostaglandin was given slowly first by doing abdominal amniotomy and then a fine polythene catheter of diameter of 1:0 mm was introduced into the amniotic sac through which the drug was injected slowly and the polythene tube was then removed immediately after the injection. In 2 cases intra-amniotic prostaglandin had to be given by the transcervical route as one of them had a laparotomy scar and another had skin infection of abdominal wall. Extra-amniotic prostaglandin was given by transcervical route in all the 94 cases by a catheter of 4.0 mm diameter, which was removed after the injection. One milligram of 15(S) 15 methyl  $\text{PGF}_{2\alpha}$  in 2 cc solution was mixed with 4 cc of Hyskon and was introduced slowly by a 4 mm catheter, which was removed after introduction. 26.55% of these cases had bleeding through the catheter, when it was first introduced, hence it was removed and introduced again through another site. The IMI Prostaglandin (15S) 15 Methyl  $\text{PGF}_{2\alpha}$  was given by 2 hourly

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IMI injection of 250  $\mu$ g. The dose varied from 750  $\mu$ g — 4250  $\mu$ g, the average dose being 2000  $\mu$ g.

The 40% hypertonic urea solution was administered intra-amniotically preferably by transcervical route in 184 cases in Queen Mary Hospital, Lucknow. The amount of urea solution was determined by gestational age. The urea solution was prepared by dissolving 80 gm of urea in 200 cc of distilled water and then after autoclaving the solution, it was immediately used.

All the patients were kept in the ward for constant supervision. A careful watch was kept on their pulse, respiration, blood pressure and urinary output. Untoward reactions, if any, like vomiting, diarrhoea and their frequency were noted. Prophylactic antibiotic cover, a combination of penicillin and streptomycin was given to all cases, except those sensitive to penicillin, who were given Terramycin.

The induction—abortion interval was calculated from the time of instillation to the time of expulsion of fetus. If the placenta was not expelled within one hour of expulsion of fetus, the placenta was manually removed.

#### Observations

Majority of the patients, who opted for

termination of pregnancy belonged to the age group of 15-25 yrs.

Of the patients wanting MTP, majority were nullipara 50% in the urea group and 39% in the prostaglandin group, main bulk of nullipara formed by unmarried mothers (Table I).

Highest percentage given prostaglandin belonged to the gestation period of 12-14 weeks and highest percentage given urea were between 14-16 weeks.

Complete expulsion of the products of conception occurred in 66.67% in the urea alone group, but it rose to 90.70% when urea was combined with syntocinon. The incidence complete expulsion rose with the increase in gestation period.

Complete expulsion occurred in 46.67% cases of intra-amniotic, 18% in extra-amniotic prostaglandin, while 60% in intramuscular prostaglandin. The incidence of retained placenta was much less in urea (4.7%) as compared to prostaglandin, and it was highest (30%) after intra-amniotic injection of prostaglandin.

The incidence of bleeding was much reduced when urea instillation was combined with syntocinon, blood loss being approximately 100 cc. in all cases. No patient had profuse bleeding after urea instillation but 1 patient in the extra-amniotic prostaglandin group had profuse

TABLE I  
Distribution of Cases According to Parity

Marital Status	Urea		Prostaglandin	
	No. of Cases	Percentage	No. of Cases	Percentage
Unmarried	75	40.76	40	27.78
P <sub>0</sub> + <sub>0</sub> (Married)	17	9.24	17	11.80
P <sub>1</sub> + <sub>0</sub>	17	9.24	23	15.98
P <sub>2</sub> + <sub>0</sub>	31	16.85	28	19.44
P <sub>3</sub> + <sub>0</sub>	22	11.96	16	11.11
P <sub>4</sub> + <sub>0</sub>	10	5.43	8	5.55
P <sub>6</sub> + <sub>0</sub>	12	6.52	12	8.34
Total	184		144	

bleeding after abortion. The haemorrhage was uncontrollable and the blood failed to clot. The uterus was contracted and there was no cervical vaginal laceration.

In the urea alone group of 141 cases, 108 aborted spontaneously within 48 hours. Out of remaining 33 cases, 10 required syntocinon drip in addition to urea, whereas 9 cases required a second dose of intra-amniotic instillation of urea. In 2 cases dilatation and evacuation was done. The remaining 12 cases aborted spontaneously within 96 to 120 hours after a single dose.

While in the urea + syntocinon group 90.70% aborted within 48 hours. The remaining 4 cases aborted spontaneously within 50 to 80 hours after re-instillation. 28.37% aborted within 24 hours and 76.60% aborted within 48 hours in the urea alone group, while in the urea + syntocinon group the success rate was better, 39.53% aborted within 24 hours and 90.70% within 48 hours.

In the intra-amniotic prostaglandin group, out of 30 cases 28 aborted within 28 hours giving the success rate of 93.33%. One case aborted after 135 hours of injection following syntocinon drip and another required abdominal hysterotomy due to organic fibrosis of cervix and tetanic contraction of the uterus.

Out of 94 cases who were given extra-amniotic injection of prostaglandin, the induction abortion interval was less than 36 hours in 64 cases (68.08%), and 10 aborted spontaneously within 105 hours after a single dose. Five cases required a second dose of extra-amniotic injection, whereas 10 aborted after syntocinon drip in addition to prostaglandin and in 5 cases termination by hysterotomy along with sterilisation was done. In the IMI Prostaglandin group, 45% aborted within 12

hours, while 90% aborted within 24 hours and all aborted within 36 hours. Out of 20 cases, 8 cases required dilatation and evacuation or oxytocics to complete the process of abortion.

#### Complications

Three patients had fever within 24 to 48 hours of instillation of urea. One patient, 32 years, 3rd para and 16 weeks pregnant developed allergic asthma 20 hours after instillation. She responded to oxygen inhalation, deriphylline and Wymesone.

The common complications in the prostaglandin series were vomiting, diarrhoea, rise of temperature upto 100°F after expulsion of fetus and, flushing of face.

In one patient anaphylactic shock occurred immediately after a single dose of intra-amniotic  $\text{PGF}_2\alpha$  and she was revived with great difficulty. One case who had a single dose of extra-amniotic injection of 1 mgm of 15(S) 15 (Methyl)  $\text{PGF}_2\alpha$  developed severe post-abortion bleeding. The haemorrhage was uncontrollable and blood failed to clot. There was no cervical or vaginal laceration. She bled from other mucous surfaces also. Further, investigations regarding coagulation defect could not be carried out. Therefore, the mortality in our series is 0.8%.

#### Conclusion

From the above study the following conclusion are drawn:

1. The highest percentage given urea or prostaglandin belonged to the age group of 15-25 years (Table I).
2. Majority of the patients wanting MTP were nullipara, 39.58% in the prostaglandin and 50% in the urea group (Table II).
3. Highest percentage given prostaglandin belonged to the gestation period of

12-14 weeks and of urea to 14-16 weeks (Table III).

4. The incidence of incomplete expulsion of placenta and blood loss was in early pregnancy compared to late pregnancy Majority required removal of retained placenta.

5. From the study it is evident that Urea + Syntocinon instillation is an effective and safe method of mid-trimester abortion because the incidence of retained placenta and blood loss is less as compared to other groups. In addition to this incidence of complete expulsion is also higher (90.70%).

6. The complications are mild in urea series as compared to prostaglandin except that one had allergic asthma, which was soon controlled.

7. The success rate was 93.33% after intra-amniotic, 68.08% after extra-amniotic, while all aborted within 36 hours after I.M.I. PG. Therefore, the induction-abortion interval was definitely less in the prostaglandin series as compared to urea alone or Urea + Syntocinon group, yet Urea + Syntocinon is much more preferable than prostaglandin for procuring mid-trimester abortion, for the following reasons:

- (1) Urea is cheaper.
- (2) Side effects are much less as compared to prostaglandin.
- (3) Blood loss, incidence of retained placenta is much less.
- (4) There was no mortality.