# EFFICACY OF INTRAMYOMETRIAL PROSTAGLANDIN IN THE MANAGEMENT OF PRIMARY POSTPARTUM HEMORRHAGE DUE TO UTERINE ATONY IN THE MULTIPARA AFTER FAILURE ON CONVENTIAL THERAPY

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## ABSTRACT

***Objective:*** To determine the success rate of postgardin (PG) $F_2\alpha$ in a primary post partum Hemorrhage (PPH) due to uterine along in multipara.

***Design:*** Quasi-experimental study.

***Place and Duration of Study:*** Department of Obstetrics & Gynecology in PNS Shifa Karachi Pakistan, from 1st June 2004 to 30th May 2005.

***Patients and Method:*** During this one year 126 cases of multipara had primary post partum hemorrhage. Inclusion criteria was multipara who developed PPH due to uterine atony and who did not respond to any other non surgical treatment modalities. Medical diseases were not considered in exclusion criteria. Primary gravida and those with secondary PPH were excluded. Out of these 26 patients had not responded by conventional methods. 250µg of PG $F_2\alpha$ was administered intra-myonemetrially. Syntocinon drip was stopped before and ergometrine was not given along this. The patients without uterine atony were managed according to the cause.

***Results:*** In this study 26(100%) received $PGF_2\alpha$ out of which 22 (84.6 %) patients responded successfully. Two patients required second dose. It was repeated at 15-90 minute interval maximum three doses were tried. The four patients (15.38 %) who failed to response, two patients had chorioamionitis, one patient had placenta praevia. One patient had no uterine response possibly due to delayed use of drug and excessive blood loss.

***Conclusion:*** $PGF_2\alpha$ is a safe drug which can reduce the rate of surgical procedures in cases of uterine atony.

**Keywords:** Prostagalandin F2alpha, Primary postpartum hemorrhage

## INTRODUCTION

Postpartum hemorrhage (PPH) accounts for around 25% of 585000 maternal deaths worldwide and due to severe peripartum hemorrhage, further 20 million mothers per year suffers significant morbidity from this cause [1]. This figure clearly ranks postpartum hemorrhage quiet high on the list of causes of maternal death. Primary postpartum hemorrhage is one of the top five causes of maternal mortality in both the developed and developing countries [2].

Excessive blood loss is defined as primary PPH in first 24 hours of delivery and secondary PPH up to six weeks. Traditionally excessive loss is described as more than 500 ml but this is seen after ten percent of pregnancies as is probably unrealistic as a useful definition [3]. It may be best defined as by fall in hemotcrit or by the need for transfusion. The morbidly and mortality do not rise only with delay in diagnosis, but due to difficulty in handling the situation by the failure of conventional therapy [4]. Conventionally variety of acceptable methods to handle this situation ranges from simple bimanual compression to complicated surgical procedures [5]. Ecobolic such as oxytocin and methyl ergovonin are useful but occasionally prove inadequate or unsatisfactory. WHO has been trying to overcome this problem by synthesizing new drugs, which are able to withstand the grave situations, prostaglandin is one of them. A set of bioactive agents accumulates in aminotic fluid during labor. These are PGE2, $PGF_2\alpha$, PGFM, free arachidonic acid, series of interleukin and endothelin. These are produced by decidual cells and mononuclear phagocytes in or recruited to decidua. Myometrium also produces $PGF_2\alpha$, the level of which increase

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during labor. Prostaglandin causes myometrial smooth muscle to contract but the success resides in the pharmacological properties of the agents.

The most important cause of massive PPH is uterine atony which accounts for 90 % of the cases [3]. The main causes of postpartum hemorrhage in the developing world are failures of uterus to contract (atonic uterus) retention of placenta, membrane pieces and genital tract injury [6].

Uterine atony is inability of the uterus to contract and retract effectively and efficiently. Atony of the uterus occur due to multiple factors such as prolonged labor, precipitate labor, retained placenta, presence of clot, operative deliveries (general anesthesia, halothane, cyclo-propane relax myometrium [7]). Over distension of uterus due to multiple pregnancies, polyhydraminos, fetal macrosomia are important factors. Others causative factors of atony are large placental site, placenta praviea, abruptio placentie, interstitial fibroid and augmentation of labor (the uterus that has been exposed to oxytocin all day will respond poorly to same or similar oxytocin.). In developing countries the third stage of labor is usually managed expectantly in a domiciliary environment with high base line risk of PPH [8]. Therefore all over the world obstetrician now advocate and recommend active management of 3rd stage of labor.

Diagnosis is made by physical signs such as fall in blood pressure and pulse rate. Gynecological diagnostic criteria include steady trickle of blood from vagina or if there is sudden loss of blood more than 500 ml after the delivery of a baby. Uterine atony can easily be diagnosed by placing a hand on the abdomen and palpating uterus. It will found to be flabby. It can be made to contract by the use of oxytocin and bimanual massage. If the uterus contract but the bleeding is persistent than the laceration of the cervix, vagina or vulva should be suspected .Bright red blood points to the uterine cavity as a source.

The best policy is to stress that the prevention of hemorrhage is preferable measure design to deal with the complications. Optimization of the outcome can be made possible through protocols, multidisciplinary drills and simulations [9]. After one previous complicated third stage, the risk is approximately trebled as is correspondingly higher than two prior abnormal third stages. It is directed to treat circulatory failure and to replace the blood volume. Asses general condition of patient and severity of blood loss. A number of studies have demonstrated the effectiveness of various prostaglandin preparations in reversing uterine atony [10]. In United States the most commonly used is methyl $PGF_2\alpha$ in a dose of 0.25~1.5mg. It may be administered as an intramuscular injection, or given into myometrium, transabdominally or transvaginally. 250µg is injected in the fundus of uterus by stabilizing it with one hand in transabdominal method. In transvaginal cases it is usually injected in the fundus, through vaginal route. This route is not easily acceptable by the patients, because it causes pain. $PGF_2\alpha$ has also been found quiet effective in uterine lavage in solution form. In these cases cervix of uterus is occluded with a ballon cathether. The recommended dose is 2000µg/hour $PGF_2\alpha$ is installed in the uterine cavity. Other prostaglandlins have been used to control postpartum hemorrhage. Prostaglandin E2 and E1 suppositories has been described as a last resort before deciding for surgery [11]

The aim of this study was to evaluate the role of prostagalndin F2 alpha in the management of primary postpartum hemorrhage due to uterine atony and to judge the impact of their use on the need for obstetrical hysterectomy.

## PATIENT AND METHODS

This is quasi-experimental study which was carried out at PNS Shifa from June 2004 to May 2005

Only those patients were included who were multipara and who developed PPH due to uterine atony and did not respond to any other non-surgical treatment modalities.

Primary Gravida, those patients reported with secondary PPH and cases without uterine atony such as disruption of birth canal, retained

placenta and membrance and placenta praevia were excluded.

During the study period 26 patients were included in the study who did not respond to any other non-surgical treatment modalities. Injection $PGF_2\alpha$ was given only in cases of uterine atony after the failure of convential method (massage of the atonic uterus along with the intravenous oxytocin, I.V methergin was administered excluding the cases of PIH and pregnancy with cardiac disease). Blood was typed, cross matched and coagulation studies were carried out. Uterus was explored manually for retained placental fragments, through inspection of cervix and vagina after adequate exposure to find out any laceration. Foleys catheter was inserted to monitor urine output. Close observation of patient was continued. If uterus did not contract and continues to bleed in spite of above measures, a stronger drug was recommended. In the study, intra myometrial $PGF_2\alpha$ was used. In case of normal vaginal delivery the fundus was stabilized and injection needle was introduced into the fundus transabdominally. Suction was done to exclude that needle was not in the blood vessel. Firmness in the needle pathway excludes its intrauterine cavity installation. In case of lower segment caesarian section the procedure was done by direct visualization.250µg was $PGF_2\alpha$ was injected. Syntocinon drip was stopped before and ergometrine was not given along this, Most of the patient responded to the treatment .In few patient second or third dose was required they were repeated at 15-90 minute interval maximum three doses were administered .The patient who did not respond to the treatment other modalities were tried. Examination under anesthesia was carried to decide the line of management according to cause .Uterine packing was done with dry gauze, four inches wide and five yards roll was introduced into the uterine cavity with sponge forceps. The time interval for removal of pack was 24-36 hours.Surgical management of the cases who failed to respond even after packing or for other reason was adopted. The patient condition was discussed with husband, family member and even with the patient. Possible surgical option was explained. Reproductive desire of the couple was determined. The surgical procedure which adopted were internal iliac ligation and transabdominally hysterectomy in combination or alone. The patients who have postpartum hemorrhage without uterine atony were managed according to the cause.

## RESULTS

During the study period total number of patients delivered at PNS Shifa were 4742. out of these 3725 (78.6%) were multipara. Incidence of PPH among multipara was 3.38% (126 cases). Out of 126 patients maximum number of the patient falls in the age group of up to 28 years. Among these multipara were 87.8% and grand multipara were 12.2%. Uterine atony cause 75.8% of primary PPH. Conventional therapy was successful mode of treatment in 79.4%. $PGF_2\alpha$ was administered intramyometrially in 26(20.6%) patients of uterine atony. It was success full in 22 cases so success rate was 84.6%. Eighteen (69.2%) patients were responded with dose of 250µg. Four (15.4%) patients receive a second dose of 250µg, reset of four (15.4%) received up to 1mg dose. Few side effects were observed for which symptomatic treatment was given. Luckily we have no maternal morality.

## DISCUSSION

During the study out of 126 patients 87.8% of patients were multipara and 12.2% of patients were grand multipara this is in contary to widespread belief grang multipara is not a risk factor in developed and developing countries [12]. The incidence of PPH is 3.38% this incidence is closes to lower limit of the developed countries [3.7-8.6%]. It has been found that the demographic indicator of dependent population in Pak Navy are far better than national statistics this can be attributed to well organized family welfare services of Pakistan Navy. $PGF_2\alpha$ was successful in 84.6% nearly same result were found in other national study conducted at Peshawar [10]. In this study four failed to responded to patients had chorioamionitis one patient of placenta pravia one patient did not responded probably due to delay use of drug and execive blood loss. All these patients

developed shock and life saving hysterectomy was mandatory.

## CONCLUSION

Primary PPH was one of the major causes of maternal morbidity and mortality. In most cases death can be avoided if the patient reaches hospital well in time and there is availability of resources in the form of medicine, blood and experience personnel. General awareness regarding the anti-natal screening and hospital deliveries should be strengthened. Active management of third stage of labor especially in high risk population is required. Use of $PGF_2\alpha$ like drugs should be encouraged and it should be easily available and cheaper. Family planning should be well organized.

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