Original Article

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A Comparative Study of Inj. hCG & Inj.17- α Hydroxyprogesterone Caproate in Cases of Threatened Abortion

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Abstract

Aim: To determine the efficacy and safety of Depot 17-α hydroxyprogesterone caproate and Human chorionic gonadotropin (hCG) in the management of threatened abortion. *Setting and Design:* This is a prospective comparative study in cases of threatened abortion in the first trimester. *Material and Method:* Use of Inj.hCG and Inj. depot 17-α Hydroxyprogesterone caproate studied in a randomized group of 80 pregnant women, diagnosed cases of threatened abortion in the first trimester. *Result:* In the present study Inj.hCG found comparatively better in cases of threatened abortion in a first trimester.

Keywords: Threatened Abortion; 17-αHydroxyprogesterone Caproate; hCG.

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Introduction

Pregnancy is wonderful and very joyous news in the lives of most women. Becoming pregnant and giving birth is a wonderful moment and gives a feeling of satisfaction and accomplishment in her life. Pregnancy, though not a disease but a normal physiological process is associated with certain risks to health and survival both for the woman and infant she bears. Abortion or miscarriage is one of the painful events interrupting a pregnancy.

Threatened miscarriages are manifested by vaginal bleeding, with or without abdominal pain while the cervix is closed and the fetus is viable and inside the uterine cavity [1]. So heavy is the impact of miscarriage on the mother that health professionals are required to provide a great amount of counseling, support and information in order to reduce the mothers' level of anxiety and concerns regarding the possibility of another loss in future pregnancy.

Though there is no treatment to stop a miscarriage that has already begun, there are various therapy options for a threatened miscarriage. Bed rest and tender loving care have withstood the test of time as the standard of care for threatened abortion, [2,3]. However, other therapy options have been tried over time. These include progesterone supplementation and human chorionic gonadotropin, uterine muscle relaxants [4] and cause-specific treatment like antibiotics for cervicovaginal infections, folic acid supplementation for defective folate metabolism, thyroid replacement therapy for documented hypothyroidism etc. Human chorionic gonadotropin promotes maintenance of pregnancy by stimulating the corpus luteum and placenta to produce increased amounts of progesterone. It may be given intramuscularly or subcutaneously. Earlier uncontrolled studies [5,6] and small randomized controlled trial have shown some benefit in pregnancy outcome wheninj. hCG administered in cases of threatened abortion while others have not demonstrated any substantial benefit. However, in Cochrane database review there was no statistically significant difference in the incidence of miscarriage between hCG and

no hCG groups [7].

Progesterone supplementation like 17α OHPC has been used in large number of women for decades despite its various degree of success [8]. The main function of 17α OHPC is preparation of uterus for nidation and maintenance of pregnancy. It brings about decidual changes in endometrium, brings about secretory changes in estrogen primed endometrium, It also decreases sensitivity of myometrium to oxytocin. Progesterone converts watery secretion of cervix to viscid, scanty and cellular.

Although medical literature suggest that there is insufficient evidence to treat the patient of threatened miscarriage with progesterone, hCG, uterine muscle relaxant, bed rest, avoidance of sexual activity, it would mean that all patients of threatened abortion need not be treated medically to conserve the pregnancy. It is with this objective of finding the effective and safe method of treatment in cases of threatened abortion this study has been designed.

Hence aim of this study was to determine the efficacy and safety of Depot 17-α hydroxyprogesterone caproate and Human chorionic gonadotropin (hCG) in the management of threatened abortion.

Materials and Methods

This prospective study has been carried out in the department of Obstetrics and Gynaecology at a tertiary Hospital. Cases of threatened abortion were investigated.

Inclusion Criteria

1. Patients with threatened abortions in first trimester
2. Patients willing to participate in the study
3. Patients with intrauterine gestation documented on ultrasonography with threatened abortion.
4. Patients without any associated local or systemic high risk factors.

Exclusion Criteria

1. Patients with inevitable /incomplete abortion
2. Bad obstetric history
3. Ectopic or Heterotopic gestation
4. Patients with local or systemic high risk factors.
5. Patients allergic to hCG, 17-α Hydroxyprogesterone caproate or any specific contraindication to either
6. Patients unwilling to take part in the study / unable to give consent.

Patients with symptoms and signs of threatened abortion were admitted. Consenting patients randomized to receive either protocol A or protocol B.In protocol A 500µg. Inj.17-α Hydroxyprogesterone caproate administered intramuscular once in two weeks. In Protocol B5000 IU Inj.Human chorionic gonadotropin administered intramuscular twice weekly.Patients were explained about the study protocol. Patients general and systemic examination including pervaginal examination done. Baseline obstetric ultrasonography performed. Baseline investigations including complete blood count, Liver function Test. renal function test, fasting blood sugar, postprandial sugar level and urine examination done. Routine antenatal assessment and ultrasonography done on each follow up visit.

80 patients were admitted with viable pregnancy in the Ist trimester up to 12 weeks which were included in the study group. They were randomly allocated in two groups and patients in each group were administered Inj. human chorionic gonadotropin (hCG) or Inj.17-α hydroxyprogesterone caproate (17-α OHPC) for the management of threatened abortion according to study protocol.

Results

34 patients (87.1%) in the hCG group having gestational age <12 weeks had FTND which was significantly more than 25 cases (60.9%) in the 17-α OHPC group. In case of abortion, there were 15 cases (36.5%) in 17-α OHPC group and 2 cases (5.1%) in hCG group with gestational age <12 week. On comparison, both the groups showed statistically significant difference.

Outcome of the pregnancy	HCG	17-αOHPC	Total
FTND	*34 (87.1%)	25 (60.9%)	59 (73.8%)
LSCS	03 (7.6%)	01 (02.4%)	4 (5%)
PTND	0 (0%)	0 (0%)	0 (0%)
Abortion	*02 (05.1%)	15 (36.5%)	17 (21.3%)
Total	39	41	80

Discussion

Every pregnancy is precious. Research in the management of threatened abortions, at present, is better understood and has come a long way from supportive treatment to hormonal and cause specific treatment. In addition to treating the cause, currently it is more focused on progesterone supplementation in various forms and dosages with newly added hCG therapy. Patients in threatened miscarriages require an early diagnosis, explanation of the threat to the ongoing pregnancy and need to treat it actively in the hospitals with definitive management with drugs like Inj. hCG and Inj 17α hydroxyprogesterone caproate cause specific treatment and supportive care which can be provided in the hospital under supervision.

It has been found that miscarriage are common with maternal serum progesterone <45nmol/L or low maternal serum hCG [9]. Thus supplementation with both is logical in cases of threatened miscarriage to conserve the pregnancy. There has been much discussion as to whether progestogen may prevent miscarriage. There was no statistically significant difference in a meta-analytic study between the progestogen and placebo groups [10]. A prospective double blind randomized, placebo control trial was done by Qureshi et al [11] at Early pregnancy Assessment unit of royal Bolton Hospital where 183 patients with threatened abortion <12 weeks of gestation were included. In this study 87 patients were randomly selected and treated with Inj.hCG and 96 patients received an injection of placebo. In this reference study the miscarriage rate was 12% in the hCG group. The miscarriage rate in placebo group was 11%.This study concluded that a multicenter trial is needed to draw any definite conclusion.

Present study was a randomized cohort study comparing Inj. human chorionic gonadotropin (hCG) and Inj.17-alpha hydroxyprogesterone caproate (17α OHPC) in patients of threatened abortion. The patients in both the group were well matched for their baseline parameters.In this study, 63 cases (66.3%) had FTND (Full Term Normal Delivery). 34 patients (87.1%) in the hCG group having gestational age <12 weeks had FTND which was significantly more than 25 cases (60.9%) the 17-α OHPC group. In case of abortion, there were 15 cases (36.5%) in 17-α OHPC group and 2 cases (5.1%) in hCG group with gestational age <12 weeks. On comparison efficacy and safety of the hCG is more than 17-α OHPC in the treatment of threatened abortion with gestational age <12 weeks.

Conclusion

This study showed Inj. Human chorionic gonadotropin (hCG) is safe and more effective than Inj.17-α hydroxyprogesterone caproate (17-α OHPC) in the treatment of threatened abortion. Inj. hCG is significantly better results when treating 1st trimester threatened abortion in terms of obstetric outcome.

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