

# The Role of hCG in Recurrent Abortion

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The prospective study carried out in obstetrics and gynaecology department of Jinnah Hospital, Lahore from March 1996 to March 1997. The selected 23 patients with history of recurrent abortion and with menstrual gestation less than 8 weeks were included in the study. The patients were evaluated in detail for the cause of recurrent abortion. 15 patients were treated with human chorionic gonadotrophin hormone administered intramuscularly. An initial dosage of 10,000 IU hCG was given, dosage of twice weekly upto 12 weeks and then once weekly uptill 16 weeks. Antenatal care was given and the patients were followed and watch for complications arising in pregnancy and in specific to the treatment. In group I out of 15 patients, 12 patients (i.e. 80% patients) continued pregnancy while 3 patients (i.e. 20% patients) aborted at 10-14 weeks of gestation. No specific treatment related complications were seen. In group II 8 patients were included. They were treated with placebo at the same interval as in treatment group. 4 patients (i.e. 50% of patients) continued pregnancy with healthy fetal outcome while 4 patients (i.e. 50% of patients) aborted. These results suggests that hCG should be considered as treatment in selected women with recurrent abortion where other specific causes have been ruled out and a potentially treatable hormonal imbalance surmised.

**Key words:** Recurrent Abortion, role of hCG

Recurrent abortion is defined as three consecutive spontaneous pregnancy wastages before 20 weeks of gestation with a fetus weighing less than 500 gm. The incidence is about 0.5% of women.<sup>1</sup> The cause of individual abortion for a couple with recurrent pregnancy loss is not always the same.<sup>2</sup> More than one factor may exist and thorough investigation may fail to reveal the cause.<sup>3</sup> The risk of a further miscarriage increases after each successive pregnancy loss.<sup>4</sup> The risk increases with each successive miscarriage, reaching over 40% after three consecutive losses.<sup>5</sup>

The causative factors includes genetic factors, chromosomal anomalies, anatomic abnormalities of genital tract, endocrine and metabolic disease, luteal phase defects, chronic systemic disease, immunological causes and environmental contributions. The success of next pregnancy outcome depends on the causative factors and its treatment. The functional corpus luteum is essential for the implantation and maintenance of early pregnancy through the production of progesterone. Potential underlying causes of luteal phase defect include decreased gonadotrophin releasing hormone, decrease follicle stimulating hormone, inadequate lutenizing hormone, inadequate ovarian stroidogenesis and endometrium receptor defects.<sup>6</sup>

Human chorionic gonadotrophin is produced principally by syncytiotrophoblast. It is luteotrophic hormone. hCG appears as early as the 8<sup>th</sup> day of gestation.<sup>7</sup> The highest levels are found between the 6<sup>th</sup> and 13<sup>th</sup> weeks of pregnancy.<sup>8</sup>

## Patients and methods

A prospective study was carried out at Jinnah Hospital Gynaecology and Obstetrics Department from March 1996 to March 1997. The purpose was to evaluate the role of

hCG in pregnant women with the history of recurrent abortion without any organic cause. The selected 23 patients were included in study, all with menstrual gestation less than 8 weeks or patients in pre-pregnant period. The patients were evaluated by history and physical examination. All couples were investigated for their problem. Tests included urine complete examination, blood complete examination, check for systemic disease, pelvic ultrasound, antiphospholipid antibodies and chromosomal analysis in indicated cases. In non-pregnant patients, hormonal assays including, FSH, LH and plasma progesterone between 20-24 days of cycle were done. These patients were included in study when pregnant and duration of gestation was less than 8 weeks. Patients were selected for study when other tests were normal or when plasma progesterone was low for the time and cycle. These patients were divided into two groups.

## Group I

Patients treated with hCG injections accordingly.

## Group II

*Placebo controlled group.*

In both groups pelvic ultrasound was done to diagnose intrauterine fetal viability (the criteria was detection of fetal cardiac activity) and to confirm the gestation of less than 8 weeks. Informed consent taken. In group I, the loading dose of 10,000 IU hCG was given intramuscularly. 5000 IU hCG was given intramuscularly twice weekly uptill 12 weeks of gestation. 5000 IU hCG was given intramuscular weekly uptill 16 weeks of gestation. In group II, patients were allocated with placebo at the same interval as in treatment group. At the convenience of patients, drugs were administered in out patient department. In other respects pregnancies were managed, and followed up as routine. A careful note for

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complications in pregnancy was made including those that could be ascribed to the treatment. The patients who aborted evacuation and curettage was done. Morphological examination of abortus specimen was done. Abortus specimen sent for histopathological confirmation and chromosomal analysis.

### Results

In the study the incidence of recurrent abortion was less than 1%. The mean maternal age was  $33 \pm 2$  years. Out of 23 patients 14 patients (i.e. 60% of patients) were nullipara while 9 patients (i.e. 40% of patients) have previous successful pregnancies. Most of the patients had a history of previous abortion at or below the age of 10 weeks of gestation while 7 patients had abortion above the 10 weeks of gestation. Only 10 patients had a previous documented record.

Table 1

n=	Treatment Group	Placebo Controlled Group
23	15	8

Table 2

	N=	%age
<b>Reproductive History</b>		
• Nulliparous	14	60%
Previous Successful pregnancy	9	40%
<b>Maternal Age</b>		
• 20 – 30 years	13	53%
> 30 years	10	47%
<b>Menstrual Gestation at previous abortion</b>		
• < 10 weeks	16	64%
> 10 weeks	7	36%
<b>Mode of delivery</b>		
<b>Group I</b>		
• Successful Pregnancy	12	80%
> Vaginal Deliveries	8	66%
> LSCS	4	33%
• Abortion	3	20%
<b>Group II</b>		
• Successful Pregnancy	4	50%
> Vaginal Deliveries	2	50%
> LSCS	2	50%
Abortion	4	50%
<b>Duration of gestation</b>	2 / 16	12%
• 32 – 34 weeks	8 / 16	50%
• 35 – 36 weeks	6 / 16	38%
• 37 – 38 weeks		

### Group I

Fifteen patients were in group I. 12 patients (80% of patients) progressed till term and delivered healthy alive babies. 3 patients (20% of patients) aborted. In patients who progressed, 2 patients threatened to abort but settled on conservative therapy. Out of 12 successful pregnancies, 8 patients (i.e. 66% of patients) delivered vaginally while 4 patients (i.e. 33% of patients) were delivered by caesarean

section. No congenital anomaly was noted. The 3 patients who aborted were between 9-13 weeks of gestation.

### Group II

Out of 8 patients 4 patients (i.e. 50% of patients) progressed successfully while 4 patients (i.e. 50% of patients) aborted. 2 patients aborted at 8-10 weeks of gestation, 1 patient at 11 weeks and 1 patient at 13 weeks of gestation. Out of 4 progressed pregnancies, 2 patients delivered vaginally while 2 patients by LSCS. No congenital malformation were noted.

### Discussion

The physiology of pregnancy is controlled by interrelated endocrine system. In the maintenance of early pregnancy progesterone and estrogen have an important role. hCG stimulates both to corpus luteum and early fetoplacenta endocrine function. Steroids secretion is increased in response to hCG stimulation.<sup>9</sup> hCG is vital for the continuation of pregnancy in early weeks of gestation.<sup>10</sup>

In cases of recurrent abortion treatment must be tailored towards the identified cause. In the study out of 23 patients, 15 patients were treated with hCG, out of which 12 (i.e. 80% of patients) had healthy outcome. 3 patients (i.e. 20% of patients) aborted. In controlled group out of 8 patients, 4 patients (i.e. 50% of patients) had healthy outcome and 4 patients (i.e. 50% of patients) aborted. The results of 80% successful pregnancies treated with hCG are correlated with open study which showed 93% of women treated with hCG. The study results are in line with other studies published.<sup>11, 12, 13, 14</sup>

### Conclusion

The results of the study correlated with already published data. A recommendation of hCG should be considered in women with recurrent abortion where other specific causes have been ruled out and potentially treatable hormonal imbalance surmised.

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