
Decreased Abortions in HMG-Induced Pregnancies with Prophylactic Progesterone Therapy

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ABSTRACT: A study was designed to see if progesterone support of the luteal phase could reduce the increased incidence of spontaneous abortions seen in HMG-induced pregnancies. Fifty milligrams per day of progesterone suppositories beginning on the third day of the temperature rise or the demonstration of ovum release by ultrasound was employed. The incidence of spontaneous abortions in the untreated control group was 28% (28 of 100) as compared to 16% (21 of 130) of the progesterone-supported patients. The decrease in abortions cannot be attributed to losses of multiple gestations since there were larger numbers of multiples in the progesterone-supported group (1.3 babies per patient) versus the controls (1.2 babies per patient).

INTRODUCTION

THE RISK OF SPONTANEOUS ABORTION BEFORE 20 weeks of pregnancy is approximately 15%.¹ Pregnancies achieved with human menopausal gonadotropins (HMG) abort in approximately 25% of the cases.²

In our first 100 pregnancies using HMG, 28 women had spontaneous abortions. However, only one occurred in a multiple gestation. Thus in this series the increased incidence of abortions could not be attributed to an increase in multiple births. In ten patients whose ovulations were HMG-induced, endometrial biopsies were performed on the tenth day of their temperature rise. (They were advised to use contraception for those cycles.) In three of these cases the endometrial biopsies dated at least four days early.

In view of these findings we began supporting the luteal phases with progesterone suppositories in all

HMG-induced ovulations to see if spontaneous abortions could be reduced. The incidence of spontaneous abortions (up to 20 weeks) was then recorded.

MATERIALS AND METHODS

A control group (group I) consisted of 100 patients with a mean age of 27.4 who became pregnant with HMG (an average of 15 ampules per cycle) without luteal phase support with progesterone. In general the HMG was employed in doses of 75 IU for 3 days beginning day 5 of the cycle, then 150 IU of HMG from day 8 with occasional increases to 225 IU until at least one 18 mm-follicle was achieved on ultrasound, when 10,000 units of HCG would be given about 36 hours from the last HMG. Cervical mucus was closely monitored with each cycle. Progesterone support of the luteal phase was then employed in the next 130 preg-

nancies (group II). The mean age of this group was 28.2 years. They were treated with progesterone suppositories 50 mg/day on the third day of the temperature rise and continued through the first trimester if pregnancy occurred. The types of ovulatory problems varied from hypogonadotropic hypogonadism (37% of group I, 33% of group II); anovulation in the presence of good estrogen effect not responding to high doses of clomiphene (200 mg for 5 days or 150 mg for 10 days) (42% of group I, 48% of group II); and good ovulation response to clomiphene (50-100 mg for 5 days) but uncorrectable hostile mucus (21% of group I, 19% of group II). In all cases there had been no previous pregnancies. The patients were followed in our office through the first 12 weeks of gestation. The patients were contacted at 20 weeks to determine their clinical status. Basal body temperature charts were kept for all patients, and a serum HCG beta-subunit measurement was obtained if the temperature remained elevated for 18 days. The abortion rate and multiple birth rates were compared in these two groups.

RESULTS

In 100 pregnancies without progesterone support, 28 patients (28%) had first trimester abortions. In 130 consecutive HMG and progesterone treated pregnancies, 21 patients (16%) had spontaneous first trimester abortions.

Multiple gestations occurred in 14 pregnancies in the control group without luteal phase treatment. One woman carrying twins aborted. The rest of the multiples were composed of two sets of triplets and the rest twins, all of which survived. Multiple pregnancies in the progesterone-supported group occurred 17 times (seven twins, six triplets, three sets of quadruplets, and quintuplets once).

Fifteen live babies were born in five sets of triplets. In one set of triplets one baby aborted at 22 weeks. Twelve live babies were born to the three others carrying quadruplets, and 11 of twelve were alive 1 month after delivery. Premature labor occurred in the set of quintuplets and five live babies were delivered at 26 weeks but none survived.

Thus in the HMG pregnancies without exogenous progesterone support, 72 women delivered 87 viable neonates (an average of 1.2 babies per patient), whereas in the group with prophylactic progesterone, 109 women delivered 141 viable neonates (an average of 1.3 babies per patient). The average number of am-

pules of HMG used in the patients who delivered triplets, quadruplets, or quintuplets (14) was about the same number of ampules of HMG as the average patient (15). The problem was that the patients were unable to develop one follicle to 18 mm without several others of the same size. Two women with only three follicles did conceive triplets, but among the quadruplets two women had 7 follicles and one woman 8 follicles between the size of 18 and 25 mm. They were all given the option of withholding HCG and cancelling the cycle, but each one wanted to take the chance.

DISCUSSION

The use of progesterone therapy in the luteal phase has been successfully employed to reduce the incidence of spontaneous abortions in habitual aborters.³ An increased incidence of spontaneous abortions has been noted in HMG-induced pregnancies. The increased percentage of fetal loss has been attributed to both the increase in multiple gestations and to an increased incidence of spontaneous abortions in women with ovulation defects. However, in these data the decrease in abortions was not associated with multiple gestations, since in the progesterone-treated pregnancies no women with multiple gestations aborted by 20 weeks and only one mother aborted (twins) in the 14 women having multiple births in the control group.

Of 130 patients with HMG-induced pregnancies supported with progesterone, 21 had spontaneous first trimester abortions (16%) as compared to 28 of 100 women (28%) not receiving progesterone support (chi-square analysis showed $P < 0.05$). In the control group without exogenous progesterone support the 72 women who did not abort gave birth to 87 live babies, whereas the 109 nonaborters in the progesterone-treated group delivered 141 live babies (including three sets of quadruplets). Thus it is possible that progesterone also prevented partial losses of multiple gestations, though this cannot be substantiated since the losses would have probably occurred prior to the ultrasound which was performed 7 weeks from conception.⁴

The same type of prenatal care was given to both groups. However, the possibility of a placebo effect influencing the results does exist. Psychological factors could possibly affect the incidence of abortion. It is possible that we believed that progesterone support would decrease the incidence of abortions, and this enthusiasm might have been conveyed to the patients.

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