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### Comparison of three different ovarian stimulation protocols for intrauterine insemination

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**Objective:** Intrauterine insemination (IUI) is usually offered to infertile couples as an easy and inexpensive method especially if the female partner has patent and well developed fallopian tubes. The aim of our study was to assess the pregnancy rate, incidence of hyperstimulation syndrome and multiple pregnancies amongst patients treated with three different ovarian stimulation protocols used for intrauterine insemination.

**Design:** A retrospective study

**Materials and Methods:** We reviewed the results of 1881 cycles of IUI from 677 patients treated at the Cleveland Clinic during 2003 - 2005. Three protocols were used for ovarian stimulation, Group I (n=129 patients, 267 cycles) were treated with Clomiphine citrate at a dose of 100 mg/day from day 3 till day 7 of the cycle; group II (n=353 patients, 828 cycles) were given highly purified FSH with different doses till reaching the proper follicular size (16-18 mm). Ovulation was triggered with 10,000 IU of human chorionic gonadotropin, and IUI was carried out 36 hours later. Patients in group III (n=195 patients, 786 cycles) were not given any medication for ovarian stimulation and considered as natural stimulation protocol. Luteal phase was not supported by exogenous progesterone. Statistical analysis was performed using Chi square, F-Fischer ANOVA and Student's T-test. Multiple logistic regression analysis was performed to control for age, type and duration of infertility.

**Results:** The mean age was  $31.6 \pm 5.4$  years; the mean duration of infertility  $3.06 \pm 1.8$  years. All treatment groups were comparable in demographic and infertility characteristics. There were significant differences in pregnancy rates per cycle as well as the incidence of hyperstimulation and incidence of multiple pregnancy rate among the three groups (Table 1). Patients under 30 years old had a pregnancy rate per cycle of 26% compared to 22% in women between 30 and 35 years old, and 12% in women over 35 years old and 5.3% in women over 40 years old. In all the cycles, pregnancy rate was significantly higher in patients under 30 years of age ( $p < 0.001$ ).

**Conclusion:** Although FSH increases the pregnancy rate per cycle in patients undergoing IUI, however, it also results in a significant increase in the rate of multiple pregnancies as well as hyperstimulation syndrome. The woman's age plays an important role in predicting good IUI outcome regardless of the ovarian stimulation protocol used.

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Table 1: Pregnancy rate and incidence of hyperstimulation amongst patients undergoing IUI

	Group I (cycles=828)	Group II (cycles=786)	Group III (cycles=267)	P- value
Pregnancy rate %	14 (116/828)	32.4 (225/786)	6 (16/267)	$p < 0.001$

Hyperstimulation syndrome %	4.2 (35/828)	7.6 (59/786)	1.9 (5/267)	p<0.001
Multiple pregnancy rate %	7.5 (62/828)	17.8 (140/786)	4.1 (11/267)	p<0.001

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