

# THE INFLUENCE OF MYOMAS UNDER ASSISTED REPRODUCTIVE OUTCOMES

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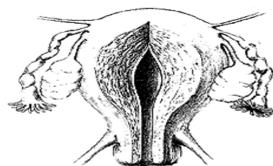
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## INTRODUCTION

Uterine myoma, leiomyoma or fibroma are the most common pelvic tumors founded in women and are estimated to occur in 20 to 50% of those with higher frequency during the late reproductive years.

The incidence of myomas in infertile women without any explained cause is estimated to be between 1.0 % to 59.0 %, showing that the influence of myomas on fertility remains debated. Several hypotheses have been suggested to explain the relationship between myoma and infertility but none is definitive.

Different parameters must be analyzed to explain the effects of myomas on fertility.



### Anatomical location

It is generally accepted that the anatomical location of a fibroid is an important factor, with submucosal, intramural and subserosal fibroids implicated, in decreasing order of importance, causing infertility.

### The size of myoma

Moreover, the size of myoma is another important factor. It is believed that the presence of a submucosal or intramural myoma that distorting the uterine cavity seems to impair pregnancy rates.



### Myomas versus ART

Although uterine myomas are associated with degree of subfertility the effect of intramural fibroids on the outcome of IVF or ICSI treatment has been not well studied and it is still controversy. However, it is believed that during Assisted Reproductive Technologies to management infertility, lower pregnancy and higher miscarriages rates have been obtained in women with myomas diagnosed.

## PURPOSE

The aim of this retrospective study was to assess the pregnancy outcomes in infertile women who underwent intracytoplasmic sperm injection (ICSI) due to ovary failure and, the influence of intramural myoma.

## MATERIAL AND METHODS

### Patients group:

All of these patients were participating of an ovidonation-ICSI program due to ovary failure. This model seems to be well accepted because it excludes the influence of the oocyte aging. Patients had not clinical indications to any surgical approach and myomas were not the main cause of infertility.

Recipient patients were splitting in two groups according to ovary status (**group I**: patients with abnormal or absent menstrual cycle and **group II**: patients with normal menstrual cycle) to investigate the impact of hormonal replacement therapy protocol under myoma development or growing.

Each group was also divided according to the presence of myomas.

### Exclusion criteria:

Patients who had submucosal or intramural myoma that distorting the uterine cavity or who had myomas measuring > 5 cm in diameter were excluded.

## STUDY DESIGN

142 ICSI cycles / 64 patients, divided in two groups:

**Group I:** 93 Ovidonation-ICSI cycles / 43 patients with regular menstrual cycles submitted to an ovarian blockage

and hormonal replacement therapy before embryo transfer

(A) 30 cycles with myomas measuring  $\geq 1$  to 5 cm in diameter

(B) 63 cycles with myomas measuring < 1 cm in diameter or without myoma

**Group II:** 49 Ovidonation-ICSI cycles / 21 patients, with abnormal or absent menstrual cycles with hormonal

replacement therapy without ovarian blockage.

(A) 26 cycles with myomas measuring  $\geq 1$  to 5 cm in diameter

(B) 23 cycles with myomas measuring < 1 cm in diameter or without myoma

### Hormonal protocols

#### Donors

All donors volunteered altruistically, after being thoroughly informed, to donate their exceeding oocytes and fulfilled the criteria to be admitted in our oocyte donation program.

They all underwent a long protocol of down-regulation with GnRH agonist and recombinant FSH (Gonal – F® / Serono) with individual dose adjustments. Human Chorionic Gonadotropin - hCG (Profasi® / Serono) was administered and ovarian puncture was performed 36 h afterwards. Micronized progesterone (600 mg/day, intravaginal) was started on the day of oocyte retrieval and embryo transfer was performed on day 3.

#### Recipients from group I

Patients were desensitized with decreasing GnRH agonist doses (Leuprolide acetate – 500 µg; 250 µg), which was administered in the midluteal phase of previous cycle. Hormonal replacement therapy with conjugated estradiol was started on the first day of the cycle with increasing doses: 2 mg/day from day 1 to day 3; followed by 4 mg/day from day 4 to day 6 and then 6 mg/day from day 7 and continued until the oocyte donation with individual doses adjustments after endometrial evaluations. For this, a vaginal ultrasound, to measure endometrial thickness and ideal pattern, and a serum E2 level were measured and oocyte donation was scheduled. Micronized progesterone (600 mg/day, intravaginal) was started on the day of oocyte donation and embryo transfer was performed on day 3.

#### Recipients from group II

Irrespective of the day cycle, patients from this group received conjugated estradiol with increasing doses, in the same way described to patients from group I, until the end of the procedure.

#### Pregnancy assessment

Serum  $\beta$ -hCG was measured on the 12th day after embryo transfer and 20 days later pregnancy was confirmed by visualization of an embryo with heart beat, by means of a transvaginal ultrasound.

#### Main outcome measures

Total pregnancy rate ; “On going” pregnancy rate ; Miscarriage rates

## RESULTS

Oocyte mean age = 29.8  $\pm$  4.3 years old

Recipient mean age = 40.6  $\pm$  5.7 years old

Complementary results are shown in following table.

	Rates	Patients		P
		A with myomas measuring $\geq 1$ to 5 cm in diameter	B with myomas measuring < 1 cm in diameter or without myoma	
<b>Group I + Group II</b>	Pregnancy	10 of 56 (17.9%)	27 of 86 (31.4%)	0.031
	Pregnancy on going	3 of 56 (5.4%)	14 of 86 (16.3%)	0.050
	Miscarriage	7 of 10 (70.0%)	13 of 27 (48.2%)	NS
<b>Group I</b>	Pregnancy	8 of 30 (26.7%)	17 of 63 (27.0%)	NS
	Pregnancy on going	3 of 30 (10.0%)	9 of 63 (14.3%)	NS
	Miscarriage	5 of 8 (62.5%)	8 of 17 (47.0%)	NS
<b>Group II</b>	Pregnancy	2 of 26 (7.7%)	10 of 23 (43.5%)	0.004
	Pregnancy on going	0 of 26 (0 %)	5 of 23 (21.7%)	0.018
	Miscarriage	2 of 2 (100%)	5 of 10 (50.0%)	NS

P < 0.05 was considered statistical difference; Fisher exact test

## CONCLUSIONS

- ❖ Our results suggest that myoma seems to have a negative impact in pregnancy rates
- ❖ When patients showed abnormal or absent menstrual cycles, success rates were statistically lower
- ❖ More studies are necessary in order to evaluate the relationship between myomas and infertility
- ❖ Parameters as the size of myomas, anatomical location and number of myomas seems to influence the treatment infertility outcomes and should be emphasize in the next studies.