

Objective

The effects of obesity on fertility outcome have been under controversy for a long time, however, recent studies show that there might be an increased infertility risk in women whose body mass index (BMI) is above 30 kg/m².

How obesity may affect the reproductive results can be explained from two different sides. Firstly, women who present ovulatory disorders in association with high BMI. Secondly, women who ovulate regularly but have decreased implantation and pregnancy rates.

In our study we tried to exclude the ovulatory disorders, to specifically assess the impact of obesity in implantation and pregnancy. Our aim was to analyze whether the reproductive outcome of those recipients of eggs and sperm donation was affected by their BMI.

Material and methods

We did a retrospective cohort analysis of the egg and sperm donation cycles in our clinic from January 2010 until December 2012. We evaluated 68 cycles of recipients of eggs and sperm from normoweight donors.

We divided recipients into three different groups according to their BMI to analyze IVF laboratory and outcome parameters: group 1 with BMI <20 kg/m² (n=14); group 2 with BMI 20–24.9 kg/m² (n=42) and group 3 with BMI >25 kg/m² (n=12).

Recipients with recurrent miscarriages or implantation failure (except for chromosomal cause) and those with uterine factor (fibroids, adenomyosis or müllerian defects) were excluded from the study. We looked at differences in pregnancy and clinical pregnancy and evaluated pregnancies until the fetal heart beat was detected.

Recipients underwent an endometrial preparation protocol that included estrogens in the form of 6 mg of Estradiol Valerate (Meriestra®) daily and after 7 to 10 days, endometrial thickness and pattern were controlled. If the endometrium showed a three-layer pattern and its thickness was at least 7 mm, estrogen therapy was continued at the same dose. If the endometrium was less than 7 mm, we increased the dose of estradiol, whether orally or using transdermal estradiol hemihydrate patches of 100mg (Estraderm®). Recipients with preserved ovarian function also received a single intramuscular ampoule administration of 3.75 mg of triptorelin (Decapeptyl depot 3.75®) in the midluteal phase of the preceding cycle.

The day of the pickup of the eggs, the recipient started with 200mg of micronized intravaginal progesterone (Progeffik® or Utrogestan®) every 8 hours and continued with the estrogen therapy.

We used fresh oocytes for all cycles, and we fertilized them with ICSI. We transferred from one to three embryos on day 3 or 5 of development. We vitrified those extra embryos that were not replaced.

Outcome Measures

We defined pregnancy as a positive b-hCG value in the first blood test for b-hCG detection, performed 11 to 14 days after the oocyte retrieval. We considered clinical pregnancy when an embryonic sac was seen in ultrasound. Miscarriage was diagnosed when the pregnancy stopped before week 12 of pregnancy after the detection of the gestational sac(s) by ultrasound.

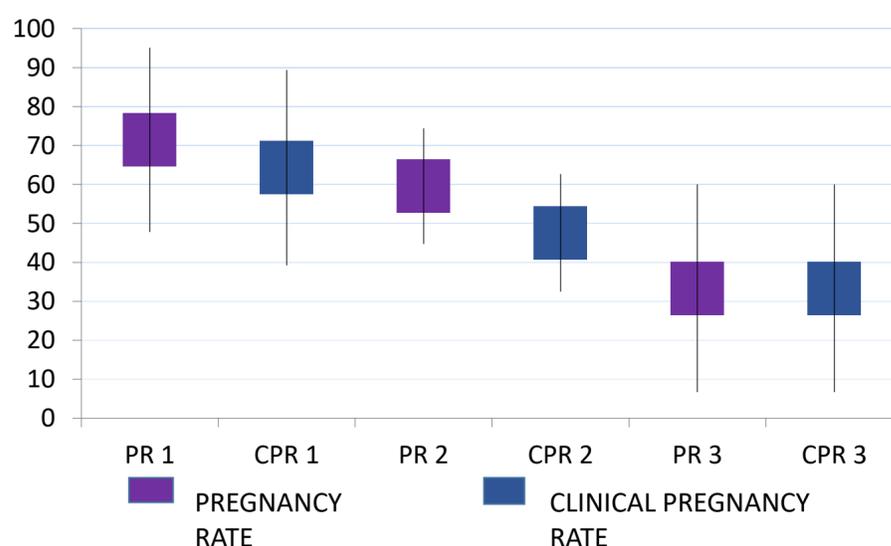
Statistics

We divided patients into three groups, based on BMI as described above and considered the variables as proportions or means together with a confidence interval of 95%(IC 95%), which we calculated with Macro !CIP for SPSS. Statistically significant differences between the groups can be identified in cases without overlapping of the intervals.

Results

We found no differences in age (41.8, 41.7 and 43.0 years), protocol and estrogen dose during endometrial preparation (89.4 mg, 87.3 mg and 81 mg) of the recipients among the three groups.

We observed similar fertilization rates and embryo quality. We replaced (1.8, 1.8 and 2 embryos) and cryopreserved (3.1, 1.7 and 2 embryos) the same average embryos in the three groups.



Conclusions

BMI may interfere with embryo implantation in those women who undergo a double donation cycle, as a result of reduced uterine receptivity. Although our study could not find statistically significant differences among the three groups, there seems to be a trend towards a lower pregnancy rate in those recipients with a higher BMI. Further studies including more double donation cycles are needed to confirm these results.