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Editorial

Possibility of Treating Women with Extreme Obesity with a BMI >= 40 kg/m^2 with IVF-Appears a Safe Option-A Short Communication

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The prevalence of women with obesity is increasing globally [1]. In 2015, 51.4% of pregnant women were considered overweight or obese before conception in USA. Thus, we as reproductive endocrinology and infertility specialists have to tackle patients with a high BMI, in view of greater prevalence of obesity and association of obesity and subfertility [3]. The cause of infertility in these subjects is partly associated with increased insulin resistance, androgen excess, and altered hypothalamo-pituitary access leading to anovulation [4,5]. With the increasing epidemic women are disproportionately entering class III (BMI 40 - 49.9 kg/m^2) and class IV obesity (BMI >= 50 Kg/m^2) categories at a greater pace than men [1,2]. Commonly women with class III and IV are not taken up for IVF treatment in view of the potential risks of procedural and anaesthetic complications during oocyte retrieval and ET [6].

As far as the American Society for Reproductive Medicine there is an official recommendation regarding how obese patients who are attempting pregnancy requires management [7]. Lifestyle modifications as far as nutrition is concerned and attempted weight loss prior to attempting conception for achieving a BMI < 35 Kg/m^2 for decreasing pregnancy complications and decrease morbidity related to procedural and anaesthetic complications during oocyte retrieval and ET. Problem is weight loss takes time and one has to weigh the benefits against the risk of a decreasing ovarian reserve. Usually the weight loss of any clinical significance without bariatric surgery, takes a long time (12 - 18 months) post operatively which might worsen the prognosis. Although guidelines of AS for Metabolic and Bariatric Surgery (BS)exist regarding role of Bariatric Surgery (BS) [8], there are far too many complications associated in pregnancy following BS [9]. Moreover, it has not been proven convincingly that weight loss improves fertility treatment success rate though obstetrical and procedural risks might get decreased. In the end IVF with oocyte retrieval is recommended for these morbidly obese patients. Recently Romanski, *et al.* [10] tried to attempt to answer how much risks are there on performing IVF in class III and IV obese subjects. They collected the largest group of morbidly obese groups, reporting their procedural and anaesthetic outcomes [10].

They collected data from 144 women having BMI >= 40 that underwent 256 cycles of oocyte retrievals at a span of 65 months time period, comparing with age matched women with other BMI classes. Normally BMI >= 40 is class III obesity, but Romanski., *et al.* [10] further separated this group by describing BMI >= 50 as class IV that sometimes labeled superobese [11]. Finally, they had 75 patients having a BMI of 44 - 49.9, 49 patients with BMI of 45 - 49.9 and 20patients with BMI > 50. Class III obese patients weighed 118 kg (mean 95.5 - 148.6 kg) and had 224 cycles, as compared to class IV obese with mean weight 143.7 kg (125.9 - 172.3), undergoing 32 cycles with highest BMI 56.8 kg/m^2 in class IV obesity.

They defined anaesthetic complications as either serious i.e. intraoperative conversion to laryngeal air mask airway or oxygen desaturation, needing conversion to general anesthesia or minor: oxygen desaturation, requiring an oral or nasal airway or continuous positive

airway pressure or the use of supplemental oxygen, or hypotension that was treated with a vasopressor. Serious potential complications were the ones needing postoperative admission to the hospital.

They concluded that not many serious complications occurred in all BMI groups, but minor complications were more in class III and IV obesity, with the fact that one can safely conduct IVF in these morbidly obese subjects. Although reassuring, sample size is of 256 oocyte pick ups (OPU), thus rare complications might not have been picked in this cohort. In view of less cases of peritoneal bleeding (0. 23%) [12], following OPU the fact that none of the primary study cohort had any complications is not unexpected In the group of 256 OPU's. More than what was expected was that only one subject in the control group of 1691 OPU's who had bleeding that needed hospitalization.

Further besides minor side effects, patients with a BMI > -40 also had greater diagnoses of gastroesophageal reflux disease, hypertension, asthma, diabetes and obstructive sleep apnea, that is expected. As far as their reports of first OPU and embryo transfer (ET) of each subject, these reports showed a lower number of eggs obtained from class IV subjects, for which utilization of transabdominal approach might have added marginally, along with lower pregnancy rates and higher miscarriage rates that is not surprising.

Interesting is the use of transabdominal approach for some of their patients (Figure 1) in this set up in class III or IV obesity due to inadequate visualization of ovaries in view of increase pelvic adiposity. 7/2.7% of 256 OPU's in these morbidly obese group needed a transabdominal OPU, which needs use of laryngeal mask airway at their hospital. This transabdominal approach has technical difficulties in contrast to the transvaginal approach partly since most of us being surgeons perform much less transabdominal vis a vis transvaginal approach. Moreover the abdominal wall is much more thicker in contrast to posterior vaginal wall, that is further increased in obese patients and interferes with the ability of the surgeon to manipulate the aspiration needle in various directions. That way the posterior vaginal wall is more suited and acts as a fulcrum from which the direction of the aspiration needle can be changed. Multiple insertions of needle are required in transabdominal approach for manipulation of the ovary to get access to the ovarian follicles at different areas within the ovary, for accommodating for the reduced pliability of the abdominal wall. Although higher definition ultrasonography machines along with assistance from radiology department is sought along with an additional assistant to manipulate the ovary but appears very tough with the photograph Romanski., *et al.* [10] provided.

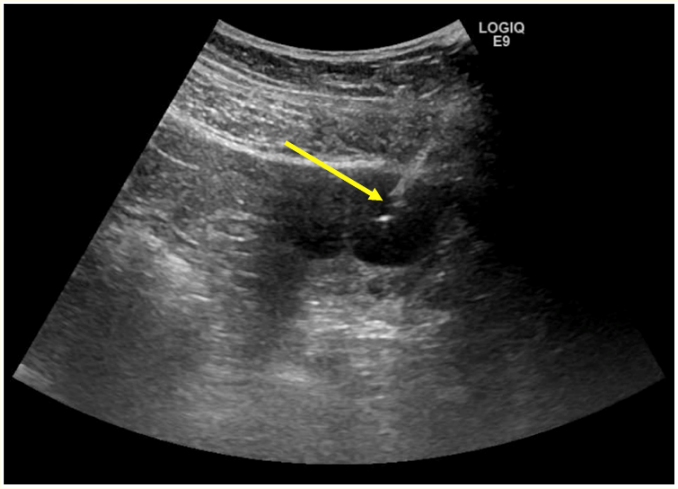

Figure 1: *Courtesy ref no. 10-Transabdominal ultrasound-guided oocyte retrieval (arrow) in a patient with a BMI of 47.8 kg/m2.*

Friendler., *et al.* [13] earlier had conducted a large retrospective study but their classification of class III was BMI 30 - 35 and group IV BMI > 35 and they did not demonstrate a significant impact of BMI on the ART cycles and thus concluding that BMI should not be a basis for IVF treatment denial [13].

Thus, how should one tackle the morbidly obese patients presenting with infertility to our clinics? As per Romanski., *et al.* [10] all patients having BMI >= 40 get an in person anaesthesia consultation, maternal fetal consultation, along with weight loss counseling prior to treatment. But despite treating very severe morbidly obese patients they also have kept a limit of patients to be taken up for IVF and do not take up patients having BMI > 60 on the basis of the institutes multidisciplinary guidelines, that most physicians would nod that it is a generous allowance. Moreover, understanding the surgical risk for obese patients is important clinically since many IVF centres are present in nonaccredited or non-licensed facilities. There are policies regarding outpatient surgical facilities or policies with the idea of getting safe results for our patients, especially those known to have > complication risks. Chantilis 19 in their centre have pt selection guidelines which exclude patients with BMI > 50, or patients having poorly controlled hypertension, asthma chronic obstructive pulmonary disease etc [14]. They have an accredited centre with guidelines that any patients having BMI >= 43 needs to receive an informal anaesthesia consultation and if requested by the anesthesiologist, a formal (in person consultation. Ultimately it is the surgeon who has decide how much markedly obese patients they can handle without complications.

Earlier Russo., *et al.* had Subjects from 20 kg/m^2 to > 40 BMI variations in a 4 year period where a single blastocyst transfer (SBT) was done and a retrospective analysis revealed that morbid obesity was a strong and independent predictor of poor pregnancy outcomes in patients undergoing top-quality SBT [15].

However, the authors in this study found prognosis was not affected and almost equivalent to other obesity groups and controls. Thus, in total Romansky., *et al.* [10] collected a large collection of morbidly obese women undergoing oocyte pick up and found that although minor complications were more common in BMI >= 40, serious complications are uncommon and that IVF can be conducted safely in these patient in an OPD setting which is prepared to handle potential complications. Although the study is not large enough for detecting rare complications one should consider taking up such obese patient for IVF but with caution that with the potential for complications vigorous monitoring for patient safety is required that includes preoperative consultation and preparation for any potential surgical complications.

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