How lifestyle intervention for weight loss affects birth rates in women with a high BMI

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Women who are overweight or obese pose an ongoing challenge for the fertility clinic. Many studies show that these patients are at increased risk of infertility and are less likely than normal-weight women to conceive after fertility treatment. For example, ovulating sub-fertile women with a body mass index (BMI) of 29 kg/m2 or higher have been found in one study to have a 4% lower pregnancy rate per kg/m^2 increase per year, compared to ovulatory subfertile women with a BMI below 29. Such studies suggest that weight reduction will increase the chances of conception, decrease pregnancy complications and improve perinatal outcome; however these results have not been confirmed in large randomised controlled trials.

The first major trial assessing the effect on fertility of lifestyle adjustment in obese women was published earlier this year and found that a weight-loss intervention preceding fertility treatment did not result in higher rates of healthy singleton birth within 24 months. In this study—the LIFEstyle study performed in the Netherlands - 290 women were assigned to a 6-month lifestyle-intervention programme preceding 18 months of infertility treatment (intervention group) while 287 women were assigned to prompt infertility treatment over the same 24 month study period (control group). Mean weight loss was 4.4 kg in the intervention group and 1.1 kg in the control group, but delivery rates were comparable in both groups, taking into account pregnancies conceived within but ending beyond the 24-month follow-up period. However, the rate of ongoing pregnancies following natural conception was found significantly higher in the group of women who received the

lifestyle intervention than in those following fertility treatment.

Now, a sub-analysis of this LIFEstyle data confirms that the chance of delivery from fertility treatment will not be improved by weight loss in any of six subgroups studied; only the rate of natural conception was improved by peconceptional lifestyle changes.

The results are presented at ESHRE's Annual Meeting in Helsinki by Dr Anne van Oers from the University Medical Centre in Groningen, the Netherlands. The study involved 23 fertility centres in the Netherlands and was the first robust study to test the efficacy of lifestyle modification in obese subfertile women trying to get pregnant.

The analysis calculated rates of vaginal birth of a healthy singleton at term in natural and assisted reproduction conception comparing women in the intervention (lifestyle modification) group and those in the control (prompt treatment) group according to six different subgroups: these subgroups were defined by age (over or under 36 years), cycle regularity (ovulatory or anovulatory) and body weight (above or below a BMI of 35 kg/m^2).

Results showed that the lifestyle intervention had no significant effect on healthy live birth rate and overall live birth rate in any of the six subgroups having fertility treatment. However, there was a significant beneficial effect of the intervention on rates of natural conception in most subgroups of women , particularly those who were anovulatory. Specifically, anovulatory women who received the lifestyle intervention had a significantly higher natural conception rate than ovulatory women who received the same lifestyle intervention (28.6% vs 11.4%).

Thus, based on these results, Dr van Oers reported: "Our finding that lifestyle intervention in obese women more often leads to natural conception, specifically in anovulatory women, should be used in their

counselling before fertility treatment and could reasonably be offered as first-line treatment for anovulation in obese women."

According to the LIFEstyle study's project leader, gynaecologist Dr Annemieke Hoek also from the University Medical Centre in Groningen, the Netherlands, the main study did find a slightly higher rate of live birth in those having prompt rather than delayed fertility treatment after weight loss (35% vs 27%). However, taking into account all the ongoing pregnancies conceived within the 24-month study period there were no differences between the lifestyle intervention and control groups (53% and 58%).

Dr Hoek said that only 78% of the women with obesity and infertility were able to adhere to the weight loss programme, and that their chances of getting pregnant turned out exactly the same as for those who started fertility treatment immediately.

"Despite intensive coaching," said Dr Hoek, "22% of the women were unable to maintain the six-month lifestyle programme, and they had a significantly lower chance of getting pregnant. And those who did complete the programme had a greater chance of getting pregnant naturally than the women who started fertility treatment immediately."

The greatest effect in the latter group was most evidently seen in anovulatory women, a result explained by the beneficial effect of weight loss on the resumption of ovulation.

The LIFEstyle study is the largest study of its kind in the world and the first to directly compare lifestyle intervention preceding fertility treatment with fertility treatment right away.

More information: Abstract O-065, Monday 4 July 2016, 16.15: Is there a different effect of lifestyle intervention in subgroups of infertile

obese women? Prespecified subgroup analyses of the LIFEstyle randomised controlled trial

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