

It is not justified to reject fertility treatment based on obesity

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ABSTRACT: Obesity can lead to anovulation and subfertility. Around the world fertility treatment is withheld from women above a certain BMI, with a threshold ranging from 25 to 40 kg/m². The proponents of this policy use three different arguments to justify their restrictions: risks for the woman, health and wellbeing of the future child, and importance for society. In this article we critically appraise these arguments. We conclude that obese women should be informed about the consequences of their weight on fertility and pregnancy complications and encouraged to lose weight. If, however, a woman is unable to lose weight despite effort, we feel there is no argument to withhold treatment from her. This would be unjustified with respect to the treatment of other women with a high risk of complications.

Key words: assisted reproduction / body mass / ethics / BMI / counselling

WHAT DOES THIS MEAN FOR PATIENTS?

Women who are obese are more likely to need fertility treatment than those who have a healthy body mass index as obesity is linked to fertility problems and can affect the menstrual cycle of a woman. Many countries set their own limits on obesity and will not offer fertility treatment to women they classify as obese. This paper questions whether it is right to restrict treatment on the grounds of excess weight.

The authors say there are three main reasons why countries may not offer fertility treatment to obese women. The first is that this could be risky for the women themselves, the second is that it may affect the health and wellbeing of any future child and finally they say that some restrict treatment in this way because they think it has financial impact for society. The authors examine these reasons in their paper. They conclude that although women need to be told about the risks of obesity, there is no justification for stopping them having treatment just because they are very overweight.

They say it is important to explain to obese women that losing weight will increase their chances of getting pregnant and to encourage them to lose weight. However, the authors believe that if a woman has been unable to lose weight, then weight alone is not a reason to stop her having treatment. They believe that obesity is a wider societal problem that needs to be addressed.

Introduction

Numerous people have the wish to start a family. This will be no different for women with obesity (BMI ≥ 30 kg/m²) than for women with a normal weight. Obese women, however, have a higher chance of subfertility than women with a healthy weight. Furthermore they are anovulatory more often and ovulatory subfertile obese women have a lower chance of natural conception (van der Steeg *et al.*, 2008). For these reasons obese women will more often need assistance to conceive. In the Netherlands and abroad there are different fertility clinics, which have a

BMI-limit for withholding treatment. In the Netherlands this limit usually lies around BMI 35 kg/m², and varies worldwide from 25 to 40 kg/m².

The exclusion of a specific group of subfertile women from fertility treatment that is available for others asks for explicit justification on the grounds of valid arguments. In this article we will check if the arguments used for a BMI-limit are tenable. Looking at the considerations of the advocates of a BMI-limit in further detail, there are three kinds: risks for the woman, health and wellbeing of the future child, and the consequences for society. Hereunder we will discuss these arguments.

Risks for the woman

When using fertility treatment a woman is exposed to the accompanying risks. In obese women the risks of treatment are not per se increased (Koning et al., 2012), but the risks of pregnancy complications are. The discussion will then be about these risks.

According to the numerous articles on pregnancy complications, i.e. hypertensive disorders, gestational diabetes and caesarean section, the risk of such complications is indeed increased in obese women and increases with every BMI-class (Weiss et al., 2004). For example, a woman who is overweight has an almost two times higher risk of pre-eclampsia than a woman with a normal weight (Cnossen et al., 2007), which means—based on highest prevalence—one in every five overweight women will get pre-eclampsia during pregnancy. For women with a BMI > 35 kg/m² this is one in every four women. The question is, however, what this means. First of all, a higher risk than the mean IVF population does not mean that it is irresponsible to take that risk. It is a question of proportionality: a higher risk can still be acceptable in light of the gain a woman can expect from treatment. Through the same reasoning IVF is thought acceptable in other women who are at increased risk of pregnancy complications because of medical conditions. Women with diabetes mellitus have an increased risk of hypertensive disorders and congenital abnormalities, macrosomia, stillbirth and premature labour (Evers et al., 2004). Diabetes mellitus is, however, not an exclusion criterion for fertility treatment.

Second of all, it should be open for discussion as to who is to decide on this. It is without question that a physician cannot put a patient at risks that are disproportional, even not at her request. But in cases where there is at least room for discussion, we can defend that a competent and well-informed woman, in principle, has the right to her own deliberation when considering risks taken for herself in realizing her child wish. Not allowing them this would be unjustified paternalism.

Risks for the child

Children of obese mothers are at increased risk of labour complications and perinatal mortality. Maternal obesity is associated with a significantly higher risk of several congenital malformations (odds ratio (OR): 1.3–2.1; absolute risk: circa 1.2%), including neural tube defects, cardiovascular risks and stillbirth (OR: 2.1, 95% CI: 1.2 to 3.6). Furthermore, pregnancies complicated by pre-eclampsia more often result in premature birth with related morbidity (Spong et al., 2011). There is a strong correlation between obesity and gestational diabetes with the increased chance of macrosomia and shoulder dystocia (Chu et al., 2007). In addition there is a positive relation between high maternal BMI and the chance of a child becoming overweight. Also, children from obese mothers have a higher risk of other illnesses and disorders associated with the metabolic syndrome (hypertension, dyslipidemia and glucose-intolerance) (Boney et al., 2005; Yessoufou and Moutairou, 2011).

There is general agreement that caregivers in fertility, because of their causal and intentional involvement in realizing the child wish of a woman or couple, should in their consideration of treatment keep in mind not only the interest of the help seeker(s) but also the wellbeing of the future child. In the Netherlands, a stance has been formulated by the occupational group (NVOG, 2010). Although there are different viewpoints on what this should mean for daily practice, it is emphasized that rejection of treatment on grounds of the welfare of the child can only be considered

in exceptional circumstances, actually when there is 'great risk of serious harm' to the child. (Pennings, 1999). Despite the aforementioned high relative risks, it cannot be maintained that, based on this criterion, fertility treatment must be withheld from women with obesity.

Consequences for society

Society has an interest in restraining the costs involved in compensating fertility treatments. Could this possibly be a reason to at least restrict the reimbursement of fertility treatment based on a BMI value? In our simulation study of subfertile ovulatory and anovulatory women the costs per live birth were, respectively, 77 and 100% higher for obese women compared to normal weight women (Koning et al., 2010). The largest proportion of extra costs was derived from pregnancy complications, which as mentioned before occur more in women with a BMI > 30 kg/m². In a cross sectional study by Maheshwari et al. the greater costs for fertility treatment for higher BMI classes were not significantly different from the lower BMI classes (Maheshwari et al., 2009). Besides this, there is a slightly lower success rate in obese women (OR: 0.8–0.9) (Koning et al., 2010; Rittenberg et al., 2011). Because of the higher risk of pregnancy complications and the higher costs per live birth, society could save money by restricting reimbursement of the costs of fertility treatment to a certain BMI. There are other priorities in healthcare besides fertility treatment and therefore it is inevitable that society draws a line somewhere. In the Netherlands, for example, only three IVF treatments are reimbursed up until the age of 43 years. The first restriction affects all IVF patients roughly in the same manner, and this age restriction is justified in light of the deteriorating success levels beyond the 40th year of life. Sneed et al. conclude that the age of a woman above 35 years has a much more negative effect on the chance of success of IVF than her BMI (Sneed et al., 2008). A BMI-limit, however, is of another category because then a potentially treatable patient group is excluded from reimbursement. An argument used for this policy is 'limited resources should be used to maximum effectiveness' (Hamilton, 2011). The question is, however, why women with an additional health problem do not have the same right to aid to conceive as women that are just subfertile and whose treatment will be less expensive because of that. Furthermore, the ones who advocate excluding treatment above a certain BMI level seem to use this instrument rather selectively. Excluding women with other comorbidities is not called for.

Discussion

Overweight and lifestyle

We conclude that none of the three arguments that are used in favour of a BMI-limit are convincing. Against all three the objection is that it excludes a specific patient category on grounds that are not applied to treatment of others with comparable risks. And of course equal cases should be handled equally. A rejoinder to this might be that, to a certain point, obesity is a changeable condition while, for example, diabetes mellitus or age are not. If the potential risk for the mother and future child together with the costs for society can be minimized by first aiming at weight loss then it is evident that healthcare providers should advise this. There are some observational studies that suggest a positive relation between weight loss and fertility (Clark et al., 1998). A result of the weight loss in this group of anovulatory women is restoration of the

menstrual cycle resulting in a decreased need for fertility treatment. In the Netherlands a RCT has been conducted looking at the effect of lifestyle intervention prior to ART versus direct ART on the chances of live birth in obese subfertile women (Mutsaerts *et al.*, 2016). The results show that lifestyle intervention did not result in more live born children than starting ART directly, and in fact it decreased the number of vaginally delivered babies beyond 37 weeks. Also, no differences were found in pregnancy complications between the groups (Mutsaerts *et al.*, 2016). More women conceived naturally and less ART was needed in the lifestyle group. Whether these pregnancies occurred as a result of the weight loss or because more time was at hand for natural conception in the lifestyle group remains unclear. Other studies have reported naturally conceived pregnancies while waiting for IVF treatment in up to 25% of couples (Home *et al.*, 2003; Brandes *et al.*, 2010).

One cannot assume that weight loss is achievable for everybody. Dropout is a considerable problem with lifestyle intervention, with less or no weight loss as a consequence (Mutsaerts *et al.*, 2013). As noted by the Task Force Ethics and Law of ESHRE in 2010, women who have attempted weight loss without success should not be excluded from fertility treatment since, as we have shown, there is no justification for such a policy (Dondorp *et al.*, 2010).

Conclusion

Obesity is a cause of subfertility and pregnancy complications. Lifestyle intervention results in more 'natural' conceptions than direct fertility treatment. A consultation at the fertility clinic should be considered an opportunity to inform patients about this and offer lifestyle intervention. If, however, weight loss is not achieved, this should not automatically shut the door to treatment for women with a weight above a certain BMI. Given that patients with, for example, diabetes or previous pre-eclampsia, who are at higher risks than many obese women, are allowed treatment on the basis of individualized and well-informed decision-making, we think there is no justification for taking a different line with regard to BMI.

The need for turning the tide and reducing the obesity epidemic with its health-related problems is evident. This change can only be achieved by addressing the real causes of obesity. It may seem easier not to help obese women in achieving a pregnancy than helping them through a pregnancy with an increased number of complications. This will, however, not change anything in the obesogenic environment we live in. Education and prevention with governmental support is needed to change this environment and will hopefully lead to long-term change.

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A.K., B.W. and W.D. all equally designed and wrote this article.

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