

## Obesity in pregnant women:

a primary care perspective on pre-conception counselling  
and the role of supplements

### BACKGROUND

Around one-fifth of pregnant women in the UK are obese (body mass index [BMI]  $\geq 30$ ).<sup>1</sup> This is a significant public health concern as obesity in pregnancy is associated with increased risks to both mother and baby. Obese pregnant women have a higher risk of pre-eclampsia, gestational diabetes, venous thromboembolism (VTE), caesarean section, and death compared with their counterparts with a normal BMI.<sup>1,2</sup> The babies of obese mothers are also more likely to suffer complications. Congenital abnormalities, macrosomia, diabetes in later life, stillbirth, and neonatal death are all more common in the offspring of obese mothers.<sup>1</sup> This article will discuss how pre-conception counselling can reduce these risks and review the role of supplements.

### PRE-CONCEPTION COUNSELLING

The Royal College of Obstetricians and Gynaecologists recommends that all women with a BMI  $\geq 30$  should receive pre-conception counselling and that *'primary care services should ensure that all women of reproductive age have the opportunity to optimise their weight before pregnancy'*.<sup>1</sup>

The causes of obesity are multiple and include a complex interplay between the psychological and situational. Maternal obesity has been shown to be associated with parity, ethnicity, and deprivation.<sup>3</sup> It is unlikely that GPs will be able to address the root cause of obesity in a single consultation. However, intervention pre-conceptually provides an opportunity to affect a positive change for patients that can persist into the next generation. Planning a child can be a significant motivator for change. This was studied in obese women attending clinic to have their contraceptive device removed. When informed of the risks associated with obesity in pregnancy, 65% of them were prepared to delay removal of contraception in order to commence an intensive weight loss programme.<sup>4</sup>

Guidance does not stipulate when

pre-conception counselling should take place and intervention could be planned or opportunistic. Motivational interviewing is likely to have a role. This technique, based on the principles of developing a guiding rather than directing style and eliciting the patient's own motivation for change, promotes behaviour change and strengthens the doctor-patient relationship.<sup>5</sup>

Much of the information discussed in pre-conception counselling is common to women of all BMIs. Recommended topics include inter-pregnancy interval, conception advice, supplements, diet, smoking, and alcohol advice.<sup>6</sup> Consultation structure will differ depending on the individual patient. Chronic diseases and severe mental health problems should be referred to specialist services prior to pregnancy. The National Institute for Health and Care Excellence (NICE) has condition-specific guidelines available for reference.<sup>6</sup>

NICE states that GPs should encourage obese women to aim for realistic targets such as a 5–10% weight loss and discuss the benefits conferred by this.<sup>6</sup> A cohort study found that a 10% reduction in pre-conception BMI was associated with a 10% risk reduction in pre-eclampsia, gestational diabetes, and stillbirth.<sup>7</sup> Despite this, there is a lack of evidence regarding the best methods to promote pre-conception weight loss. NICE recommends that women presenting pre-conceptually should be offered a weight loss support programme including advice about diet and exercise.<sup>6</sup> However, a Cochrane 2015 review found no randomised controlled trials investigating outcomes after pre-conception interventions.<sup>8</sup> The National Institute for Health Research (NIHR) suggests that *'overweight and obese women are likely to benefit from accessing general weight management services'*<sup>8</sup> and so referral to tier 2 and 3 services through usual mechanisms seems appropriate.

In the UK, there are no evidence-based

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guidelines about recommended weight gain ranges in pregnancy. GPs should discuss healthy eating and moderate exercise in pregnancy and quash myths such as the need to ‘eat for two’. Caloric requirements do not increase in the first and second trimesters, and in the third increase only by 200 calories daily.<sup>6</sup>

Some obese women may require aspirin in pregnancy to reduce risks of pre-eclampsia. Women with two or more moderate risk factors (including BMI  $\geq 35$ , age  $>40$ , family history, first pregnancy, multiple pregnancy) are likely to need 150 mg aspirin from 12 weeks’ gestation.<sup>1</sup>

## FOLIC ACID

Folic acid is well known to reduce risks of neural tube defects (NTD). Obese women are at higher risk of having children with NTD.<sup>2,6</sup> They are also at increased risk of folate deficiency.<sup>2</sup> The reason for this is not well understood and likely to be multifactorial. Obese people have been shown to have poorer diets with reduced intake of folate.<sup>2</sup> However, interestingly, obese people have less serum folate even after controlling for intake.<sup>1</sup>

These findings contribute to the recommendation that all pregnant women with a BMI  $\geq 30$  should be advised to take *5 mg folic acid daily* (as opposed to the usual 400 mcg) for the month preceding conception and first trimester of their pregnancy.<sup>1,6</sup>

## MICRONUTRIENTS

The role of vitamin D in pregnancy needs further investigation. Both obesity and pregnancy are risk factors for being deficient in vitamin D.<sup>1,9</sup> It is thought that supplementation may reduce the rate of pre-eclampsia, gestational diabetes, and low birthweight infants.<sup>9</sup> However, there is some concern about the possibility that, when given together, vitamin D and calcium supplementation could *increase* the risk of pre-term labour and more work is needed in this area.<sup>1,9</sup> NICE recommends that all pregnant and lactating women should take a *10 mcg vitamin D supplement daily*.<sup>10</sup>

Although in its infancy, work into the role of other micronutrients may offer some explanation of the increased morbidity associated with obesity in pregnancy. Obese people are more likely to be deficient in micronutrients (including vitamins B6, C, and E).<sup>2</sup> Coupled with this they have higher levels of background inflammation.<sup>2</sup> A possible explanation for adverse health outcomes associated with obesity in pregnancy could be increased levels of

oxidative stress caused by micronutrient deficiency.<sup>2</sup> There is currently not enough evidence to advocate the use of multivitamins in pregnancy and results thus far in this field have been mixed. Future research may reveal a role for further supplementation.

## CONCLUSIONS

- Obesity in pregnancy is associated with increased complications for mother and baby including mortality.
- Obese women of childbearing age should be offered pre-conception counselling.
- Obese pregnant women should be advised to take 5 mg folic acid and 10 mcg vitamin D daily — starting prior to conception.
- More work is needed to assess the role of vitamin D and micronutrient deficiencies in pregnancy.

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