Sexual and reproductive dysfunction in women with diabetes

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Article points

1. Diabetes and sexual dysfunction is well recognised in men; however, little is documented in women with diabetes.
2. Treatment for women with diabetes and sexual dysfunction can be complex and may be include medication, use of devices and psychosexual support.
3. Polycystic ovary syndrome is more common in women with diabetes and can have a negative impact on a woman's fertility.

Key words

- Polycystic ovary syndrome
- Sexual dysfunction

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Diabetes and sexual dysfunction is well recognised in men; however, little is documented in women with diabetes. There are few studies of sexual dysfunction in women, mainly due to the lack of standardised definitions of sexual dysfunction in women, the absence of well-validated scales and societal taboos regarding females' sexuality. This article outlines some of the sexual and reproductive problems that women with diabetes may experience and the various treatment options available.

An active and satisfactory sex life is beneficial for health, but there is often reluctance from professionals to enquire about an individual's sexual symptoms (British Society for Sexual Medicine [BSSM], 2010).

The Royal College of Nursing (2009) emphasises the importance of training practitioners to enable them to raise the subject of sex in their consultations. Often personal embarrassment, inadequate skills and knowledge, or the fear of being asked something that you know nothing about stops a healthcare professional from even starting those conversations. Gott et al (2004) also suggests that the healthcare professional does not always discuss sexual issues as much as a person would like. Furthermore, many information booklets tend to focus on male issues only.

Over the past few years, however, female sexual health in diabetes is increasingly being addressed. NICE guidance for diabetes in pregnancy says that:

> *"Women with diabetes should be informed about the benefits of preconception glycaemic control at each contact with healthcare professionals, including their diabetes care team, from adolescence"* (NICE, 2015).

Diabetes and sexual dysfunction is well recognised in men; however, little is documented about women with diabetes. To date, this area has received little attention, although the problem in this group may be more common than actually documented. In general, studies for sexual dysfunction in women have trailed behind those for men, mainly due to the lack of standardised definitions of sexual dysfunction in women, the absence of well-validated scales and societal taboos regarding females' sexuality (Althof et al, 2005). Diabetes UK (2009) published data showing that women with diabetes were twice as likely to experience sexual dysfunction as those without.

This article discusses some of the sexual issues faced by women with diabetes, which prevents them from having a fulfilling sex life. The article also discusses the link between polycystic ovary syndrome and diabetes and the impact on women's reproductive health.

Sexual health

There are four phases to the sexual function for women: desire, arousal, orgasm and resolution (Masters and Johnson, 1966). There are a number of studies that have shown a significant decreased level of sexual desire in women with diabetes, varying

from 20–78% and this problem appears to be more common in women with type 2 diabetes.

The next phase is arousal and this phase is responsible for lubrication in women. Many women with diabetes have reported that this is reduced and some studies have reported that up to 76% of women with diabetes may be affected (Basson 2001). There is some thought that structural changes in female genital tissue, plus impairment of nerve and blood supply, might impact on the arousal and orgasmic sexual response (Meeking et al, 2013). Most studies that have been undertaken in this area have reported an increase in orgasmic issues in this group, although this ranges from 10–84%. Fatemi et al (2009) evaluated the sexual function of 50 married women with type 2 diabetes and reported that diabetes significantly impairs sexual performance and the ability to achieve orgasm was affected by all stages of sexual functioning.

A number of studies, including Erol et al (2002), have shown an increased risk of dyspareunia in diabetes and this can affect all stages of the sexual cycle. This study also demonstrated that women with diabetes do have reduced vibration sense in their genitalia, although, no correlation with sexual dysfunction was identified in this particular study.

Interest in sex declines in both men and women with increasing age, but this change is often more pronounced in women. The prevalence of "low sexual desire" is around 30%. The figure for sexually rated personal distress is lower, at around 20% (BSSM, 2010). It is lowest in older women and higher in younger women. Although sexual difficulties are more prevalent in older women, the distress and relationship difficulties they can cause are greater and more frequent among younger women, as older women are more accepting of these difficulties than are their younger counterparts (BSSM, 2010).

Throughout a woman's sexually active years, she can develop a number of sexual health concerns; these may include medical issues related to pregnancy or genito-urinary infections, as well as psychological issues – anxiety, body image and mood. Unfortunately, there is very little up-to-date research in this area (Meeking et al, 2013).

Psychological issues

One of the most well-recognised risk factors for sexual dysfunction in women is depression. Enzlin et al (2009) noted that women with diabetes were at an increased risk of developing depression, which can impact on all stages of sexual functioning. Kennedy and Rizvi (2009) also demonstrated this in his paper on the impact of antidepressants and sexual dysfunction.

Diabetes and increased age are associated with both reduced desire and decreased arousal in women. However, few studies have reported the treatment status of these women experiencing post-menopausal symptoms. An important point to make is that oestrogen therapy is associated with improved postmenopausal vaginal lubrication and potentially less dysfunction in the arousal stage (Meeking et al, 2013). Biochemistry assays of testosterone are of limited value and are not routinely recommended in women. Assay results will vary with the time of day and other steroids can interfere with them. Age- and gender-corrected normal ranges are lacking (BSSM, 2010).

Treatment for female sexual dysfunction

There are no clear guidelines for women with sexual dysfunction. There are guidelines that specifically look at the role of androgens in women with sexual problems (BSSM, 2010) and the American College of Obstetricians and Gynaecologists guidelines, which offer a brief sexual symptom checklist for women and are adapted from Hatzichristou et al (2010). These are shown in *Box 1*. These women's problems can require complex solutions. Psycho-sexual counselling needs to be offered in order to take into consideration any depression and anxiety, or relationship difficulties. Treatment for depression is crucial and often the appropriate anti-depressant

Page points

1. Studies have shown a significant decreased level of sexual desire in women with diabetes and this problem appears to be more common in women with type 2 diabetes.
2. Many women with diabetes have reported reduced arousal and lubrication and some studies have reported that up to 76% of women with diabetes may be affected. There is some thought that structural changes in female genital tissue, plus impairment of nerve and blood supply, might impact on the arousal and orgasmic sexual response.
3. One of the most well-recognised risk factors for sexual dysfunction in women is depression. Studies have shown that women with diabetes are at an increased risk of developing depression, which can impact on all stages of sexual functioning.

Box 1. Sexual symptom checklist for women (Hatzichristou et al, 2010).

- Are you satisfied with your sexual function? If no, please continue:
- How long have you been dissatisfied with your sexual function?
- Mark which of the following problems you are having and highlight the one that is most bothersome:
  - Little or no interest in sex
  - Decreased genital sensation
  - Decreased vaginal lubrication (dryness)
  - Problem reaching orgasm
  - Pain during sex
  - Other
- Would you like to talk about this with your healthcare professional?

Table 1. Summary of treatment options for sexual problems in women with diabetes.

Sexual problem	Treatment
Reduced vaginal lubrication	Education regarding need for adequate stimulation prior to penetration.
	Water-based vaginal lubricants.
	Hormone replacement therapy.
	Arousal enhancement strategies.
	PDE-5 inhibitors may be effective.
Poor genital sensation	Penetrative/non-penetrative vibrating sex aids.
	Clitoral therapy devices.
	Arousal enhancement strategies.
Dyspareunia	Investigation and treatment of underlying condition.
	Lubricants.
	Arousal enhancement.
	Reduce focus on penetrative sex.
Inability to orgasm	Psychosexual support.
	Vibrating sex aids.
	Clitoral devices.
Reduced libido	Review and treat any concurrent depressive illness.
	Psychosexual support for any self-image issues.
	Oestrogen replacement therapy.
	Testosterone replacement may be considered.

PDE-5=phosphodiesterase type 5.

medications can be beneficial. Diabetes control needs to addressed and the best individual target should be met to reduce the risk of further long-term chronic complications, or worsening pre-existing complications. Long-standing complications and libido dysfunction are often more resistant to treatment. Couple therapy has also been proven to result in greater partner intimacy (Meeking et al, 2013). Hormone replacement therapy in post-menopausal women may improve sexual function by improving vaginal pH levels and elasticity, and further increasing vaginal blood flow to enhance lubrication.

Women who may have problems with arousal or orgasm disorders can benefit from using a vibrator or localised aids. Such aids create a gentle vacuum for the clitoris, which increases genital blood flow and sensitivity.

Oral therapy

There have been a few very small studies of the use of phosphodiesterase type 5 (PDE5) inhibitors, as these act on nitric oxide-medicated smooth muscle relaxation to increase vasodilations. This, in theory, will improve lubrication and vulva engorgement. These oral therapies are not licensed for use in women with sexual dysfunction but they do have some benefit in the arousal phase of sexual dysfunction (Berman et al, 2003). A full list of treatment options is shown in *Table 1*.

Contraception

Contraception should be discussed with women who have diabetes at each health review. It is important to emphasise avoidance of unplanned pregnancy as this is an essential component of diabetes education from adolescence onwards. Healthcare professionals should explain to women with diabetes that their choice of contraception should be based on their own preferences and any risk factors. Those with poor control are more at risk of acute complications, such as thrush, which can be passed to her partner (NICE, 2015).

Women with both type 1 and type 2 diabetes without any complications can generally use any form of contraception. Women who are known to have complications, such as retinopathy, neuropathy or nephropathy, should be cautious and where possible should not use medroxyprogesterone injections. This is because progestogens can decrease glucose tolerance (eMC, 2015). Therefore, women with diabetes should be carefully monitored.

Those women who maybe planning a pregnancy need to be informed about the benefits of good diabetes control. Poor glycaemic control can increase the risk of major congenital malformations and miscarriage (Ray et al, 2001), so it is extremely important to attain good control before conceiving (NICE, 2015).

Polycystic ovary syndrome

Insulin resistance is recognised as a major risk factor for type 2 diabetes (Lillioja et al, 1993). Multiple factors, such as insulin resistance and beta-cell

dysfunction may contribute to and increase diabetes risk in polycystic ovary syndrome (PCOS). Other factors include obesity and family history of type 2 diabetes. PCOS is a common problem and can affect up to 10% of all women of childbearing age (De Leo et al, 2004). Many women with PCOS are found to have hyperandrogenism and chronic anovulation; this can lead to sexual dysfunction and infertility. Infertility is a presenting problem in up to 40% of women with PCOS. If pregnancy is achieved, other reproductive problems, such as miscarriage, can emerge. Although PCOS is not predictive of miscarriage, these women often have a higher plasma level of androgens. Metformin can be helpful in this group of women, with or without diabetes, as it can help control insulin sensitivity sufficiently to enable an improvement in the woman's metabolism to a degree that she can then conceive. A study by Romualdi et al (2013) looked into the role of metformin and glucose/insulin metabolism in women with PCOS. They concluded that these women who enter pregnancy in a condition of severe hyperinsulinemia have development of gestational diabetes earlier, independently of metformin treatment. However, the physiological deterioration of insulin sensitivity is not affected by the drug and does not predict the timing and severity of the glycaemic imbalance.

Conclusion

Sexual problems are common and during a woman's life she may find herself unable to have an adequate sexual experience for many different reasons. It has already been documented that women with diabetes have an increased risk of sexual dysfunction. Determinants of sexual function include age and duration of diabetes. These have an effect on desire, arousal, orgasm, sensation and dyspareunia. Psychological factors in sexual response is important. One of the most commonly reported sexual problems is the lack of vaginal lubrication. This, in turn, may partly explain the inability to achieve orgasm and reduced libido. Sexual dysfunction needs to be considered in the assessment of these individuals. Self-image can be a problem in women, particularly in younger women, whereas depression and anxiety are more common in among older women. Treatment for sexual dysfunction in women with diabetes should include improving glycaemic control, lifestyle changes, psychotherapy and, in some cases, medical therapy. Sexual function should be discussed at an annual review and there is an important need to address sexual dysfunction in people with diabetes and to offer evidence-based treatment options accordingly. The use of a sexual symptom checklist for women as mentioned earlier in this paper can be a useful tool in the clinical setting.

As healthcare professionals we should be aware of female sexual dysfunction and, if we are uncomfortable discussing these issues during the consultations, we should be able to signpost the individual to the appropriate help and support. ■

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