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Sexual health and dysfunction in men and women with diabetes

David Edwards

Sexual dysfunction is common in people with diabetes and, although much research has focused on erectile dysfunction, there is a lack of knowledge regarding sexual dysfunction in women. Maintaining sexual health is more challenging for those with diabetes, with an increased prevalence of fungal and bacterial infections. Taking a basic sexual history is therefore an important skill for a primary care clinician as an individual's sexual background will help to provide the appropriate treatment, be it pharmacological or psychological. This article discusses the identification and treatment of male and female sexual dysfunction in people with diabetes and explores how to take a sexual history.

Learning objectives

After reading this article, the participant should be able to:

1. Describe the treatment of erectile dysfunction according to NICE guidelines and the options available if the individual does not respond to pharmacotherapy.
2. Outline the management of female sexual dysfunction and give appropriate pre-conception advice to women with diabetes.
3. Conduct a consultation and take a sexual history from an individual with skill and respect.

Key words

- Contraception
- Erectile dysfunction
- Sexual dysfunction
- Testosterone deficiency

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Sexual dysfunction is common in people with diabetes. Much medical research has focused on male sexual dysfunction, particularly erectile dysfunction (ED). In general, male sexual dysfunction is more obvious and measurable than female – ED being a classic example. There is also more research into ED because effective treatments have been developed by the pharmaceutical industry. This gender imbalance is being addressed as more research around female sexual dysfunction is published. This article first looks at the identification and treatment of male and female sexual dysfunction and then how best to conduct a consultation about sexual dysfunction.

Sexual dysfunction in men with diabetes

Erectile dysfunction

Approximately 152 million men worldwide have erection problems and this figure is expected to increase to 320 million by 2025 (Ayta et al, 1999). ED is defined as the persistent inability to attain and/or maintain an erection that lasts long enough for satisfactory sexual activity (Hatzimouratidis et al, 2010). In men with diabetes, the prevalence of ED varies between 35% and 90% (Malavige and Levy, 2009). It is three-times more common in men with diabetes than men without, and occurs 10–15 years earlier in men with diabetes than those without (Feldman et al, 1994).

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An erection is initiated by sexual stimulation and is a vascular process controlled by the autonomic nervous system. The blood vessels in the corpora cavernosa dilate and lead to increased arterial inflow and reduced venous outflow. Smooth muscle relaxation is key and nitric oxide (NO) has been identified as the agent largely responsible for smooth muscle relaxation in the corpora cavernosa (Price, 2010).

In men with diabetes, evidence suggests that autonomic neuropathy and endothelial dysfunction contribute to failure of NO-induced smooth muscle relaxation, resulting in ED (Sáenz de Tejada et al, 1989; 2004).

Importantly, ED is a marker for other comorbidities, including diabetes, depression, lower urinary tract symptoms and cardiovascular disease. Research has shown that 12% of men who sought help for ED had previously undiagnosed diabetes, demonstrating the need to investigate other conditions in people with ED (Lewis, 2001). More recent evidence has suggested that ED is an early marker for endothelial dysfunction (Pegge et al, 2006), and therefore cardiovascular health should be assessed in men presenting with ED. Furthermore, the risk of developing coronary heart disease is doubled for men with ED and type 2 diabetes compared with men without ED (Ma et al, 2008).

Assessment, management and treatment of ED

The MALES (Male's Attitudes to Life Events and Sexuality) study demonstrated that 64% of men with ED reported at least one or more comorbidity (Rosen et al, 2004). Therefore, it is important that the individual presenting with ED (whether or not he has diabetes) is medically assessed. Assessment involves a sexual, medical, psychosocial and cultural evaluation.

Initial blood tests that should be considered when assessing a man with ED are full blood count, fasting blood glucose, cholesterol and lipids, liver function test (LFT), thyroid function tests and testosterone, as it is important to consider the person holistically. Other testing for prostate-specific antigen, creatinine and electrolytes should be considered.

Smoking can increase the risk of ED (Feldman et al, 1994), although it is not proven that smoking cessation will improve existing ED. ED in men with diabetes is often multifactorial in aetiology and is more severe and resistant to treatment than ED in men without diabetes.

Drug therapy

The first phosphodiesterase-5 (PDE-5) inhibitor, sildenafil, became available in 1998, and two more – tadalafil and vardenafil – have since been approved for the treatment of ED. The treatment success rate with sildenafil in men with diabetes has been reported as 56–59% (Price et al, 1998; Rendell et al, 1999). All three PDE-5 inhibitors appear to have similar efficacy and tolerability, and NICE recommends choosing the drug with the lowest acquisition cost (National Collaborating Centre for Chronic Conditions [NCCCC], 2008).

The duration of action of tadalafil, however, is longer than the other two PDE-5 inhibitors, with a "window of opportunity" lasting up to 36 hours (Electronic Medicine's Compendium [EMC], 2010a) compared with at least 4–5 hours for sildenafil and vardenafil (EMC, 2010b; 2010c; Price, 2010). The choice between these treatments usually depends on the preference of the individual. Many men with diabetes require the maximum dose of PDE-5 inhibitor and it should also be made clear that the drugs are only effective in combination with sexual stimulation.

It has been suggested that men who have not responded to treatment with a PDE-5 inhibitor may be successful with further education and attempts at intercourse. One study reported that intercourse success rates in men treated with sildenafil reached a plateau after eight attempts. It can be concluded that men should attempt intercourse eight times using the maximum recommended dose of PDE-5 inhibitor before being considered a non-responder (McCullough et al, 2002).

Other treatments

It may be helpful to prescribe a vacuum therapy device for use on a daily basis as a penile trainer to encourage blood flow into the penis and as a confidence builder, as many people with ED have been without erections for several years. Furthermore, it is not unusual for men to require more than one therapy for their ED, which may include testosterone replacement.

Other forms of ED treatment include urethral

Page points

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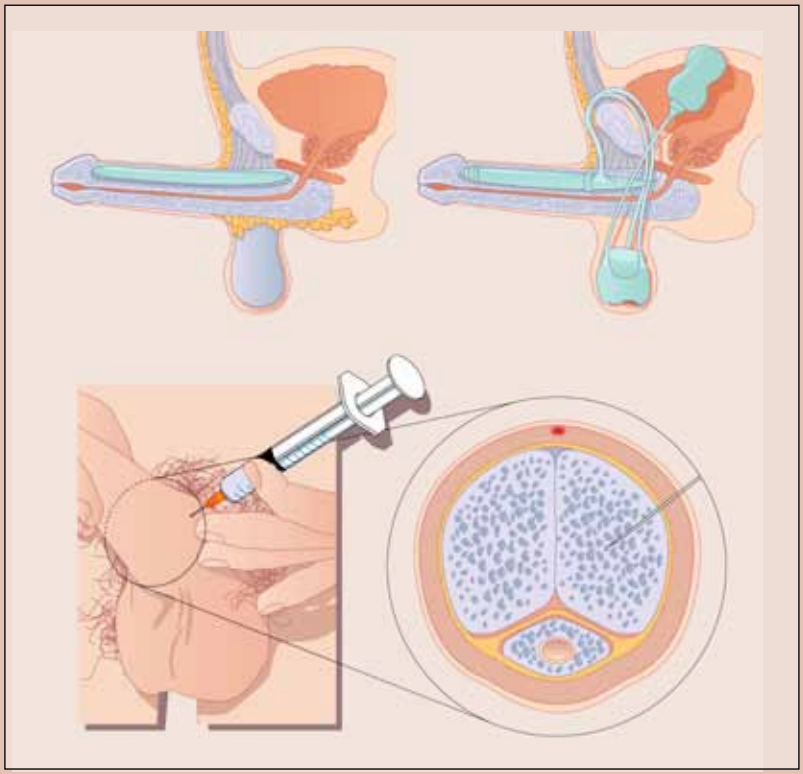
2. Smooth muscle relaxation is key and nitric oxide (NO) has been identified as the agent largely responsible for smooth muscle relaxation in the corpora cavernosa.
3. In men with diabetes, evidence suggests that autonomic neuropathy and endothelial dysfunction contribute to failure of NO-induced smooth muscle relaxation, resulting in erectile dysfunction (ED).
4. The first phosphodiesterase-5 inhibitor, sildenafil, became available in 1998, and two more – tadalafil and vardenafil – have since been approved for the treatment of ED.

Figure 1. An illustration of treatments for erectile dysfunction. Top left: semi-rigid penile implant surgery; top right: inflatable penile implant; bottom: injection therapy, such as alprostadil, to relax smooth muscle and improve blood flow to the penis.



Page points

1. Hypogonadism, or testosterone deficiency syndrome, is not uncommon, with an estimated incidence in the UK of 1 in 200 men, and is a clinical condition with both biochemical evidence of testosterone deficiency and symptoms of reduced libido or erectile dysfunction.
2. There are various preparations that are available for testosterone replacement therapy, including topical gels, patches, and 3-monthly injections.

pellets (medicated urethral system for erection), injections into the corpora cavernosa, or penile implant surgery (*Figure 1*). In men with neuropathy, alprostadil injection therapy has been shown to be an effective treatment for ED (Porst, 1996). Guidelines for the management of ED can be easily accessed via the British Society for Sexual Medicine website (http://bit.ly/cvkkJK).

Therapies that may cause or worsen ED

Men with diabetes are commonly prescribed many medications that may include ED as a side-effect on the data sheet, and some people are tempted to stop taking these medications, often without telling their doctor. Such drugs include statins and antihypertensive medications such as non-selective beta-blockers and diuretics. However, withdrawal of a drug could compromise the treatment of another important condition and it is important to remember that the problem being treated, as well as the drugs prescribed to treat it, can be associated with ED. It may be possible to change or modify individual treatment to drugs that are less likely to impact ED, such as choosing angiotensin-2 receptor blockers for the treatment of hypertension (Khan et al, 2002).

Testosterone deficiency syndrome

Hypogonadism, or testosterone deficiency syndrome, is not uncommon, with an estimated incidence in the UK of 1 in 200 men, and is a clinical condition with both biochemical evidence of testosterone deficiency and symptoms of reduced libido or ED (Nieschlag et al, 2004). In a study by Kapoor et al (2007), 20% of men with diabetes had a total testosterone level of <8 nmol/L and the level was between 8 and 12 nmol/L in 31%. Most sexual dysfunction specialists would agree that if both features are present then testosterone replacement therapy (TRT) should be considered unless contraindicated (Handelsman, 2002).

It is vital that healthcare professionals screen for hypogonadism as there is a strong association between low testosterone and mortality and morbidity. The 10-year mortality is almost twice as high in men with low testosterone when compared with men in the highest percentile (Shores et al, 2006). Men with type 2 diabetes have double the rate of hypogonadism (Mulligan et al, 2006).

The total testosterone blood test should be taken at 9 am (or 2 hours either side) as there is diurnal variation. In general, TRT should not be used when the total testosterone is above 12 nmol/L whereas men with levels below 8 nmol/L will usually benefit from TRT. In individuals with a testosterone level of between 8–12 nmol/L, a trial of TRT may be useful. It is important not to treat having obtained just one total testosterone level and further tests (including prolactin, sex hormone binding globulin, luteinising hormone/follicle stimulating hormone, LFT and prostate-specific antigen test) should be performed prior to TRT.

There are various preparations that are available for TRT, including topical gels, patches, and 3-monthly injections. Although oral capsules are available, they are not recommended as the testosterone blood levels may be unreliable. The individual needs to be monitored at 3–6 months, 12 months and at least annually thereafter. This includes digital rectal examination and blood tests, total testosterone, full blood count and LFT.

Guidelines for advice concerning blood tests and management issues are available (Wylie et al, 2010).

Other common diabetes-related sexual problems in men

There are a range of other conditions that occur more commonly in men with diabetes, such as balanitis and phimosis, that can make sexual activity painful. It is therefore important that full enquiry is made regarding these conditions.

Balanitis (inflammation of the glans penis) can have both physical and psychological effects on ED and intercourse due to irritation, pain, discharge and anxiety associated with transmitting a fungal infection to a partner. It has been found that the prevalence of balanitis in men with diabetes was 16% compared with 5.8% in men without (Fakjian et al, 1990). Furthermore, Drivsholm et al (2005) found that 12% of men have suffered from balanitis in the 2 years prior to them being diagnosed with diabetes.

Phimosis (a condition where the foreskin cannot be retracted) and Peyronie's disease (growth of connective scar tissue in the penis) can also affect ED and the ability to have intercourse, and both are more common in men with diabetes. The prevalence of Peyronie's disease in men with diabetes and ED is 20.3% (Arafa et al, 2007). In a heterogeneous group of men with ED the figure was 16% (Kadioglu et al, 2004), whereas the prevalence in two general population studies was 3.64% (Rhoden et al, 2001) and 3.2% (Schwarzer et al, 2001). Data on the natural history of Peyronie's disease suggest that 13% of cases will gradually resolve, 47% will remain stable and 40% will worsen (Gelbard et al, 1990). There are various treatments available, directed at those in whom the condition is getting worse, including surgery and verapamil injection.

Phimosis is common in men with diabetes. One study showed that 32% of men presenting at a urology clinic had diabetes and phimosis (Bromage et al, 2008), reinforcing the need to perform fasting blood glucose levels when these conditions are discovered. Physiological phimosis may just require an improvement in hygiene and observation, whereas pathological phimosis will require referral to a urologist.

Diabetes can also cause penile fibrosis due to loss of endothelium and smooth muscle cells from the corpus cavernosum (Burchardt et al, 2000).

Sexual health in women with diabetes

The paucity of knowledge regarding female diabetes and sexual health is gradually reducing. There are many reasons for this. Women may not report of sexual dysfunction, or it may not be perceived as a problem. It could be that signs and symptoms merge into a mélange of mood swings, cystitis, vaginitis, depression or lack of lubrication and libido. There is a tendency to ignore the primary reason – diabetes – and treat the secondary problems, such as thrush.

Research has been difficult to design because of methodological problems (De Veciana, 1998). Nowosielski et al (2010) researched 544 Polish women as well as reviewing many studies on women with diabetes. The authors found that the prevalence of female sexual dysfunction in women with diabetes was between 14% and 85% (17–71% with type 1 and 14–51% with type 2 diabetes) but accepted it could be either under- or overestimated. Low desire (17–85%) and reduced lubrication (14–76%) were the most frequently reported female sexual dysfunction; orgasmic and pain disorders were less common (1–66% and 3–61%, respectively). The authors further describe possible explanations as to the causes of this, namely decreased receptivity to sexual stimulation and endothelial deregulation due to diabetic neuropathy (Nowosielski et al, 2010).

Caruso et al (2006) found that reduced sexual satisfaction and sexual activity were a result of decreased clitoral blood flow. Some authors comment that factors such as age, BMI, duration of diabetes, glycaemic control, HbA_{1c} level, menopausal status, the use of hormonal and oral contraceptives, or even the presence of diabetes complications could be relevant, whereas others found contradictory results. Although the work of Nowosielski et al (2010) seems to confuse the subject of sexual dysfunction in women with diabetes, it does highlight the need to enquire about such difficulties. These women with diabetes may more frequently experience arousal, desire, pain or lubrication-related problems.

Simple but effective treatments include topical hormone replacement therapy (Rees, 2009) using topical oestrogens (tablets, pessaries, rings or creams), vaginal lubricants, or a combination

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1. Poor glycaemic control in the first trimester of pregnancy is associated with an increased risk of major congenital malformations and miscarriage, so it is vital to attain good glycaemic control before stopping contraception.
2. Long-acting reversible contraception, such as the intrauterine contraceptive device and hormonal contraceptive implants, are actively being promoted in primary care and by contraceptive experts, and are suitable for use in women with diabetes.
3. Fungal and bacterial infections are also very common in women with diabetes, and it has been found that vulvovaginal candidosis occurs more often in this group of women.

of both. At present, two lubricants are available on prescription: Replens® (Anglian Pharma, Hampshire) and Sylk® (SYLK, Kingston Upon Thames). The latter is a very effective product and is manufactured using kiwi fruit – clinicians need to be aware of the (rare) allergy risks. Another useful product is Yes® (Yes Pure Intimacy, Alton), which is available in an oil-based and a water-based form. The author often advises a thin "base coat" of the oil-based preparation followed by a "top coat" of the water-based product (Edwards, 2010a).

Pre-conception care

The NICE guideline for diabetes in pregnancy states that: "Women with diabetes should be informed about the benefits of pre-conception glycaemic control at each contact with healthcare professionals, including their diabetes care team, from adolescence" (National Collaborating Centre for Women's and Children's Health, 2008). Women of child-bearing age should be informed about the need for effective contraception.

Poor glycaemic control in the first trimester of pregnancy is associated with an increased risk of major congenital malformations and miscarriage (Ray et al, 2001), so it is vital to attain good glycaemic control before stopping contraception. In a study by Pearson et al (2007), women who planned for pregnancy and waited until their glycaemia was under control before stopping contraception had lower rates of adverse outcome. Ideally both the woman and her partner should be included in decisions about her care and should be given appropriate and sufficient information.

Contraception

Long-acting reversible contraception, such as the intrauterine contraceptive device and hormonal contraceptive implants, are actively being promoted in primary care and by contraceptive experts, and are suitable for use in women with diabetes.

Women with diabetes (type 1 and type 2) with no vascular disease can generally use any form of contraception. However, women with nephropathy, neuropathy, retinopathy or other vascular disease should not use progestogen-only injectable contraception because side-effects can aggravate these complications. These include: a tendency to gain weight; coagulation factors for prothrombin (II) VII, VIII, IX and X can increase; there is a risk of retinal thrombosis; some people can exhibit glucose intolerance, which could disrupt glycaemic control and adrenal function can be suppressed; rarely, abscess formation can occur at the injection site, which may impair glycaemic control (EMC, 2010d). Likewise, the combined oral contraceptives, the combined contraceptive patch and combined contraceptive vaginal ring should only be used with consideration of the above risk factors. Sterilisation is an option but must be performed in a setting with healthcare professionals experienced in managing diabetes and backup medical support.

Other diabetes-related sexual problems

Fungal and bacterial infections are also very common in women with diabetes, and it has been found that vulvovaginal candidosis occurs more often in this group of women (Bohannon, 1998). Furthermore, vulvovaginal candidosis that is chronically recurring can be a marker for diabetes (Sobel, 1997). An improvement in glycaemic control can reduce the risk of reinfection.

Polycystic ovary syndrome (PCOS) is a common problem affecting 5–10% of all women of childbearing age. The most common facets are hyperandrogenism and chronic anovulation, which can lead to infertility and sexual dysfunction. There is a high prevalence of diabetes (16%) and hypertension (40%) in women with PCOS (Carmina and Lobo, 1999). Metformin can help to control insulin sensitivity enough to enable a correction in the woman's metabolism to a degree that she can conceive. Clomiphene citrate is the drug of choice in stimulating the ovaries to produce eggs (Balen and Rutherford, 2007a), but where there is lack of ovarian response, other more complicated and expensive treatment regimens may need to be used (Carmina and Lobo, 1999). Once pregnancy is achieved there is an increased risk of spontaneous abortion because of abnormal hormonal levels, abnormal embryos due to atretic oocytes and an abnormal endometrium (Carmina and Lobo, 1999). Once the pregnancy is established, there are increased rates of complications such as pre-eclampsia, diabetes, premature labour and stillbirth. In a study by Legro et al (1999) almost a third of women with PCOS of reproductive age had impaired glucose tolerance and 7.5% had diabetes.

Basson et al (2010) recently noted that overweight but not lean women with PCOS have an increased incidence of sexual dysfunctions, noting that further research in such women with PCOS was needed. The authors also commented that an "optimal balance of hormonal milieu is critical to normal sexual functioning" but that hormones were only one component.

Diabetes-related infertility in men and women

The link between diabetes and ED has already been discussed and needs to be assessed when couples present with fertility issues. Diabetes is also strongly associated with premature ejaculation (PE) and reduced libido; certainly, the author has had infertility consultations where the main factor is PE. Two studies have shown the prevalence to be over 40% – higher than the general population prevalence of 28–32% (El-Sakka, 2003; Malavige et al, 2008). Reasons for the underlying mechanism of PE in diabetics is not clearly understood but probably include both physical and psychological factors. Integrity of the central and peripheral neurotransmitters and autonomic nervous system are paramount for erection and ejaculation (Sáenz de Tejada and Goldstein, 1988).

The main link between women with diabetes and fertility problems appears to be obesity. Weight loss improves not only the endocrine profile but also the reproductive outcome, and 5–10% weight loss can reduce central fat by as much as 30% (Norman et al, 2004). Insulin resistance is an important pathophysiological abnormality (Balen and Rutherford, 2007b). Furthermore, the greater the degree of insulin resistance, the longer the time interval between menstrual bleeds (Balen et al, 1995).

NICE guidance and QOF indicators

To date, sexual dysfunction in diabetes is not part of QOF. Therefore, diagnosis and management of these conditions remain extremely variable and they are largely unrecognised or untreated. NICE now recommends that men with type 2 diabetes are annually assessed for ED (NCCCC, 2008). See *Box 1* for recommendations for the management of ED in men with type 2 diabetes.

Box 1. Management of erectile dysfunction in men with type 2 diabetes (National Collaborating Centre for Chronic Conditions, 2008).

- Review the issue of erectile dysfunction with men annually.
- Provide assessment and education for men with erectile dysfunction to address contributory factors and treatment options.
- Offer a phosphodiesterase-5 inhibitor (choosing the drug with the lowest acquisition cost), in the absence of contraindications, if erectile dysfunction is a problem.
- Following discussion, refer to a service offering other medical, surgical, or psychological management of erectile dysfunction if phosphodiesterase-5 inhibitors have been unsuccessful.

Effect of diabetes on psychological, physical and social wellbeing

The pathophysiological changes of sexual dysfunction that are associated with diabetes are mainly due to a variable combination of neuropathy, vasculopathy, hypogonadism and locally occurring pathological factors. Although the physical effects of diabetes are well established, it should be remembered that social and psychological aspects can also play a part in sexual dysfunction. This is illustrated by the case study in *Box 2*.

The chronic nature of diabetes and its complications can lead to relationship problems, including arousal difficulties and sexual inhibition. Men with diabetes may need more physical stimulation, which may not be appreciated by his partner who may consider herself unloved and less attractive. This can then lead to poor self-esteem, anxiety and depression (Bancroft and Gutierrez, 1996).

Consultation and referral

Discussing sex with an individual

Men are not noted for seeking help for their sexual problems, but neither are some healthcare professionals particularly adventurous in enquiring

Box 2. Case study.

Mr G, aged 28 years, presented to his GP with erectile dysfunction (ED). He has type 1 diabetes and is treated with a basal–bolus insulin regimen. He has read about the effect that diabetes can have on erections. He has been married for 2 years and has had ED for the past 6 months, but still has early morning erections.

After taking a fuller history it transpired that his mother-in-law is dying from cancer and there is family pressure to conceive a first grandchild before she dies. This social pressure had put psychological strain on him to perform sexually to fit in with his wife's ovulation. An explanation of the effect of psychological stress on performance, fertility education and a phosphodiesterase-5 inhibitor enabled a grandson to be conceived and born prior to his mother-in-law's death.

about such matters. Women in general terms are more used to "going to the doctor", however they may also have issues about discussing sexual problems. This may be particularly the case in the context of a busy diabetes clinic where general medical or pharmacological aspects may, in an individual's mind, take precedence over those of a sexual nature.

A number of barriers that stop healthcare professionals raising the subject of sex have been identified (Athanasiadis et al, 2006):

- Lack of relevant training.
- Embarrassment.
- Time constraints.
- Conservative sexual beliefs.
- Insufficient knowledge on sexual health.
- Insufficient acceptance of the individual's special sexual profile.

Patients are not insulted if the healthcare professional asks about sex; from the author's clinical experience from focus group research it was noted that "It would be good if [the doctor] talked about it ... with privacy". It almost goes without saying that confidentiality should be respected at all times. This can be particularly relevant in family medicine where the community may be very close both socially and genetically.

Furthermore, cultural and religious attitudes need to be considered. Often, although a referral letter or the patient may say that he has ED, it is not unusual for another diagnosis to be made, such as premature ejaculation or vaginismus in his partner. It is important to enquire about the partner's sexual and general health. It is always helpful to encourage the partner to attend or offer for her to come to the follow-up appointment to obtain her perspective.

Adolescents with diabetes are not excluded from having anxieties concerning sexual matters and particular attention needs to be paid to this group. Often they have difficulties coming to terms with their diabetes, let alone sexual issues.

People often present with a "calling card" to test the clinician out, such as athlete's foot. It is important to ask about sexual function so that the individual has the opportunity to voice any concerns.

Box 3. Conducting a consultation.

- It is important to respect the patient's right to privacy, confidentiality, and respect any differing cultural or religious aspects.
- The clinician needs to be aware of any sexual advances that may be made upon him or her and take measures such as using a chaperone where necessary and knowing how to defuse such a scenario.

Box 4. Taking a basic sexual history.

Below are a range of areas that should be covered to take a full sexual history.

- So, what appears to be the problem? Ideally, try to obtain both the patient's and partner's perspective.
- How long as it been going on? Establish the severity of the problem.
- What actually happens?
- Establish the duration of relationship, age and gender – do not assume it is heterosexual.
- If multiple partners, past or present, does the problem occur with all of them?
- Does the partner have a problem? Is it sexual (for example, atrophic vaginitis) or general medical (for example, arthritis in knees), or psychological (for example, depression)?
- Is intercourse possible and, if so, what sort of intercourse (vaginal, oral or anal)?
- Is there the same problem with masturbation?
- Enquire about sexually transmitted infections past or present, patient or partner and protective measures taken.
- Enquire about the need for contraception or if the couple are trying to conceive.
- General medical history past and present, social and drug history.
- Other medical conditions such as cardiovascular, depression, cancer (patient and partner).
- Any hospital admissions or surgery (especially genital), past or present, not forgetting obstetric or infertility aspects.
- Who else is at home (children, elderly relatives, flatmates and/or animals)?
- Is there any work or family stress, and have there been any changes in the patient's situation or level of stress?
- Are there any cultural or religious factors regarding the patient and partner?
- Obtain a drug history and ask about whether they were prescribed or recreational drugs and when they were initiated or discontinued with regard to a sexual problem.

Taking a basic sexual history

The art of taking a sexual history is to listen, look interested, maintain good eye contact and be encouraging with both non-verbal and verbal cues (*Boxes 3* and *4*). Do not fiddle with the computer, your mobile or the patient's notes. The clinician needs to adopt a non-judgmental, caring and professional consulting style to minimise embarrassment. It is paramount to ascertain what actually happens (and what does not) during sexual activity. Also, one needs to be prepared for anything that might be said during the consultation. ED may be an expression of underlying psychosexual issues, which may need to be discussed with a trained counsellor.

When to refer

Unlike many topics in general practice, sexual dysfunction seems to have a wide range of referral

patterns. Some clinicians refer early to a specialist while others will manage the majority of their patients, carrying out investigations and treating where necessary. Typical indications to refer include:

- Intensive psychosexual therapy needs.
- Therapies for ED, such as intracavernosal injections, intraurethral pellets, surgery options.
- Non-responders to PDE-5 inhibitors.
- Testosterone replacement therapy.
- Specialist investigations, for example cardiological, such as exercise tolerance testing.
- Referrals for other comorbidities found during assessment, for example prostate cancer.
- Sexual dysfunction outside the competence of the clinician.

Conclusion

Sexual problems are common in both men and women with diabetes. Healthcare professionals need to be comfortable asking individuals about such problems and, where necessary, refer on to sexual dysfunction specialists. A contract of sexual health (Edwards, 2010b) provides an ongoing programme for the individual and his or her partner, and the clinician and wider healthcare team. By using the individual skills of healthcare professionals, both the person's sexual difficulties and medical or lifestyle issues can be progressively addressed, so that he or she is empowered and encouraged to holistically improve not only the sexual issues but also general health. ■

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"By using the individual skills of healthcare professionals, both the person's sexual difficulties and medical or lifestyle issues can be progressively addressed, so that he or she is empowered and encouraged to holistically improve not only the sexual issues but also general health."

Box 5. Useful contacts.

- British Society for Sexual Medicine: (www.BSSM.org.uk) A multidisciplinary society for healthcare professionals, membership includes two journals (*The Journal of Sexual Medicine* and *British Journal of Sexual Medicine*). Anyone can access the guidelines on erectile dysfunction and androgen replacement therapy.
- British Association for Sexual and Relationship Therapists: (http://www.basrt.org.uk; info@BASRT.org.uk) A website that patients can access in order to gain help concerning psychosexual matters. The site includes names and addresses, specialties and location of therapists as well as useful information.
- Relate: A nationwide group offering help to couples on a variety of matters including sexual dysfunction (enquiries @relate.org.uk).
- Diabetes UK (www.diabetes.org.uk).

CPD module

Online CPD activity

Visit www.diabetesandprimarycare.co.uk/cpd to record your answers and gain a certificate of participation

Participants should read the preceding article before answering the multiple choice questions below. There is ONE correct answer to each question. After submitting your answers online, you will be immediately notified of your score. A pass mark of 70% is required to obtain a certificate of successful participation; however, it is possible to take the test a maximum of three times. Before accessing your certificate, you will be given the opportunity to evaluate the activity and reflect on the module, stating how you will use what you have learned in practice.

1. Which of the following is not associated with female sexual dysfunction? Select ONE option only.
A. Low desire.
B. Reduced lubrication.
C. Pain during sex.
D. Decreased receptivity to sexual stimulation.
E. Increased clitoral blood flow.

2. At what total testosterone blood level will the individual benefit from testosterone replacement therapy? Select ONE option only.
A. <8 nmol/L.
B. >12 nmol/L.
C. >13 nmol/L.
D. >14 nmol/L.
E. >15 nmol/L.

3. Which one of the following statements regarding phosphodiesterase-5 (PDE-5) inhibitors is incorrect? Select ONE option only.
A. There are five phosphodiesterase-5 (PDE-5) inhibitors licensed in UK.
B. Many men with diabetes will require the maximum dose of PDE-5 inhibitor.
C. Tadalafil has a longer duration of action compared with the other PDE-5 inhibitors.
D. One study showed that intercourse success using a PDE-5 inhibitors reaches a plateau after eight attempts.
E. PDE-5 inhibitors are only effective in combination with sexual stimulation.

4. A 48-year-old man presents for the first time with erectile dysfunction. Which of the following blood tests is not necessary? Select ONE option only.
A. Full blood count.
B. Total testosterone.
C. Sex hormone binding globulin.
D. Fasting blood glucose.
E. Cholesterol.

5. When is the optimum time of day to take a total testosterone blood test? Select ONE option only.
A. 7–8 am.
B. 9 am.
C. 2–3 pm.
D. 5–6 pm.
E. 8 pm.

6. Which of the following statements about male sexual dysfunction is correct? Select ONE option only.
A. Peyronie's disease has a prevalence of about 3.5% in men with diabetes.
B. Phimosis is not a condition that commonly affects men with diabetes.
C. Diabetes can cause increased fibrosis in the tunica albuginea.
D. A fasting blood glucose should be carried out on men suffering from balanitis.
E. Peyronie's disease, balanitis and phimosis do not impact ED.

7. A 57-year-old male with type 2 diabetes reports that his PDE-5 inhibitor has recently stopped working, having worked well for the past 18 months. Which of the following would you consider or discuss during the consultation? 1. Confirm what dose of PDE-5 inhibitor he is taking and maximise the dose if possible; 2. Take another sexual history; 3. Check his blood glucose, cholesterol and lipid levels but not the full range of erectile dysfunction blood tests as he had them taken when he was first assessed; 4. If he is taking the maximum dose of a PDE-5 inhibitor try adding in a second different PDE-5 inhibitor on top of his existing one; 5. Check for other medical comorbidities. Select ONE option only.
A. 1, 2 and 5.
B. 3 and 1.
C. 2, 3 and 5.
D. 3, 4 and 5.
E. All of the above.

8. A 59-year-old man with diabetes has a routine blood test and his total testosterone level is 9.1 nmol/L. He comments that his erections are diminishing in quality and hardness. What is the next course of action? Select ONE option only.
A. Initiate testosterone replacement therapy.
B. Carry out a hypogonadal screening test.
C. Repeat a testosterone blood test.
D. Check his prolactin, sex hormone binding globulin and luteinising hormone/follicle stimulating hormone levels and perform a liver function test and prostate-specific antigen test.
E. B, C and D.

9. A 28-year-old female and her 40-year-old partner attend the surgery and comment that she has been trying to get pregnant for the past year. Further enquiry highlights that she rarely has a period now. You wonder whether she has polycystic ovary syndrome (PCOS). Which one of the following statements is correct when considering PCOS? Select ONE option only.
A. The most common features are hypoandrogenism and obesity.
B. Hypertension is uncommon.
C. Metformin should be stopped if the woman is trying to conceive.
D. Clomiphene is still the treatment of choice for stimulating the ovaries to produce eggs.
E. Lean women have an increased incidence of sexual dysfunction if they have PCOS.

10. An 85-year-old woman with type 2 diabetes presents reporting vaginal itching. Which of the following would you consider or discuss during the consultation? 1. Establish whether thrush is present and treat as per current guidelines; 2. Prescribe a PDE-5 inhibitor; 3. Look for atrophic vaginitis and prescribe a topical oestrogen if indicated; 4. Assume that she is not sexually active; 5. Ask her to re-attend for a fasting blood test. Select ONE option only.
A. 1, 2 and 3.
B. 1, 3 and 5.
C. 1, 3, 4 and 5.
D. 3 and 5.
E. 1, 4 and5.