

Management of erectile dysfunction in men with diabetes

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ARTICLE POINTS

1 Erectile dysfunction is one of the most neglected complications of diabetes.

2 All healthcare professionals have the ability to detect erectile dysfunction in men with diabetes.

3 All men with diabetes should be questioned and educated about erectile function.

4 In most cases, erectile dysfunction in men with diabetes can be successfully treated.

5 Knowledge of treatment options can enhance confidence in questioning patients on this subject.

KEY WORDS

- Erectile dysfunction
- Diabetes complication
- Treatment options

Introduction

The social stigma of seeking help for sexual problems is slowly being removed, so it can be expected that more men with diabetes will consult with healthcare professionals about the treatment options for sexual problems including erectile dysfunction, loss of libido and retrograde ejaculation. This article aims to raise awareness of the problem of erectile dysfunction, the most common sexual disorder affecting men with diabetes, and to review current, licensed, non-surgical treatment options.

Erectile dysfunction (ED), defined as 'the inability to achieve or maintain an erection sufficient for satisfactory sexual performance' (Wagner and Saenz de Tejada, 1998), affects not only the man with diabetes, but also his partner, his family, his work and his social life. Such sexual difficulties can sometimes also result in depression, anger, lack of self-esteem, as well as self-confidence and relationship problems.

Although ED is known to be more prevalent among men with diabetes (Fairburn et al, 1982), sufferers and healthcare professionals still tend to be reluctant to talk about sexual difficulties. This may be due to embarrassment, ignorance of the available treatment or a belief that ED is normal with increasing age (Price et al, 1991; Kelleher and Oxenham, 1993).

It is therefore essential that healthcare professionals fully understand the effect of diabetes on erectile function and the effectiveness of the available treatment options. Increased knowledge and confidence may encourage professionals to routinely ask about sexual difficulties in consultations with patients, and thus tease out the real distress in many people's lives.

Causative factors

Obtaining an erection is dependent on a complicated series of physiological responses, which are vulnerable at several stages to the influence of diabetes and its complications. The three main factors contributing to ED in diabetes are:

- Vascular disease
- Autonomic neuropathy
- Psychological factors.

Vascular disease

Vascular disease can affect the ability to achieve erection in various ways. Atheroma of the arterial inflow can limit maximal blood flow to the penis and thereby restrict penile volume and turgidity (Jevitch et al, 1982). Microvascular abnormalities, notably narrowing and obliteration of arterioles, in the penis have also been reported. Failure of the veno-occlusive mechanism has been reported to cause premature detumescence (Pickup and Williams, 1997).

Diabetic neuropathy

Diabetic neuropathy can interfere with the mechanism of erection. Neural activity is required for nitric oxide synthesis, responsible for the relaxation of the smooth muscle, and a prerequisite for penile erection. Abnormalities of autonomic nerve function have been found in over 50% of men with diabetes and ED (Ryder et al, 1992).

Psychological factors

Psychological factors contribute to ED in as many as 50% of men with diabetes who have the condition (Buvat et al, 1985). In addition, most men with an organic cause for their ED have a psychological component to their problem, which is often triggered by performance anxiety or worries about their relationship. Webster (1994)

points out that performance anxiety and marital disharmony are frequently associated with ED, but are often neglected if the patient has diabetes.

Assessment

The presence of ED, its likely cause(s) and prognosis, and the most appropriate options for treatment can be determined from a thorough assessment of the patient. Routinely, a medical and sexual history along with a physical examination tend to be the mainstay of the assessment. The assessment will classify the ED as organic, psychological or a combination of the two. An appropriate treatment plan can then be devised for the individual patient. It should be noted, however, that any healthcare professional could establish whether the ED is of an organic nature by means of simple questioning (Table 1).

Treatment options

Many factors may influence erectile function (Table 2), and when these are addressed, the difficulties experienced can often improve without any treatment. For those whose ED has an organic aetiology, current treatment options include oral medication, injection therapy, transurethral therapy, vacuum devices and surgical intervention. Surgical intervention, such as penile implants, should be considered a last resort because it reduces the scope for trial with other treatments.

Every man with diabetes is eligible to receive pharmacological treatment free on prescription, and can negotiate the frequency of use with his GP.

Oral therapy

The use of oral agents in the treatment of ED provides men with a simple, non-invasive, discreet, non-painful therapy option. Until September 1998, there was no licensed oral agent for the treatment of ED, although various oral agents (e.g. yohimbine) had shown limited efficacy in clinical trials (Eardley, 1998).

The development of sildenafil (Viagra) has provided men with a convenient means of managing ED. Sildenafil restores erectile function in response to sexual stimulation, by inhibiting a chemical process and

enhancing relaxation of smooth muscle in the penis, which is responsible for causing an erection.

Evidence of the efficacy of sildenafil among men with diabetes has been demonstrated. Rendell et al (1999) found that 56% of men with diabetes experienced improvements in their erection with sildenafil, and Price and Rendell (1998) showed that the frequency of penetration and frequency of maintained erections were significantly improved with sildenafil (Figure 1).

The side-effects of sildenafil have been reported to occur at a rate of 2%, and have been described as transient. The most commonly recorded adverse events were headache, flushing and dyspepsia (Morales et al, 1998). Generally, sildenafil has been found to be a well-tolerated oral treatment for ED.

Despite these encouraging results, Korenman et al (1999) showed that the effect of sildenafil was greatest in patients with no diabetes complications and lowest in those with two or more complications. It should be noted that people with diabetes who have more than one complication — often the case on presentation — may have less favourable outcomes.

Intra-cavernosal injection therapy

Prostaglandin E₁, known generically as alprostadil and available as Caverject or Viridal, is the only licensed pharmacological

PAGE POINTS

- 1 A thorough assessment can establish the probable cause of erectile dysfunction.
- 2 Affected individuals should have all the available treatment options explained to them.
- 3 Surgical intervention should be considered a last resort.
- 4 Sildenafil offers a simple, non-invasive, discreet treatment option for erectile dysfunction.
- 5 Sildenafil is less effective in men with diabetes who have more than one complication than in those with no complications.

Table 1. Good indicators of an organic cause of erectile dysfunction.

- No erections under any circumstance
- Gradual reduction in erection quality over time
- Normal ejaculation
- Normal libido

Table 2. Factors influencing erectile dysfunction

- Poor diabetes control
- Balanitis
- Drug therapy side-effects
- Relationship issues
- Smoking
- Alcohol/drug misuse

agent of this kind. Its actions include vasodilation of blood vessels in the erectile tissues and an increase in blood flow, causing penile rigidity. The technique of injecting the drug directly into the erectile tissue of the penis is simple, and relatively painless (Figure 2). Careful instruction and monitoring of the technique is, however, essential to prevent potential complications such as local trauma, prolonged erections (priapism) and fibrosis of erectile tissue.

Overall satisfaction rates with intra-cavernosal therapy may be as high as 75% (Sidi et al, 1988). Indeed, men with diabetes are even more likely than those without to produce a satisfactory response to intra-cavernosal therapy (Bancroft, 1995). However, the long-term use of penile injections could be considered undesirable. Sundaram et al (1997) found that only 32% of men continued to use injection therapy 5 years after it was commenced. Reasons for

discontinuation of therapy included desire for a permanent modality of therapy, lack of a suitable partner, fear of needles, poor response and a lack of sexual spontaneity.

Overall, intra-cavernosal injection therapy of vasoactive drugs has been found to be a safe, effective and acceptable treatment for ED. Serious infective problems rarely occur.

Transurethral therapy

Transurethral therapy (Figure 3) provides a safe, effective and less invasive method of treatment for people with ED who prefer not to use self-injection therapy. Medicated urethral system for erection (MUSE) enables men to administer alprostadil topically to the urethral mucosa for absorption into the erectile tissue. Side-effects include mild penile pain for one in three patients, mild urethral trauma in one in 25 patients and dizziness in one in 50 patients.

TREATMENT OPTIONS FOR ERECTILE DYSFUNCTION



Figure 1. Sildenafil is the only licensed oral therapy for the treatment of erectile dysfunction.

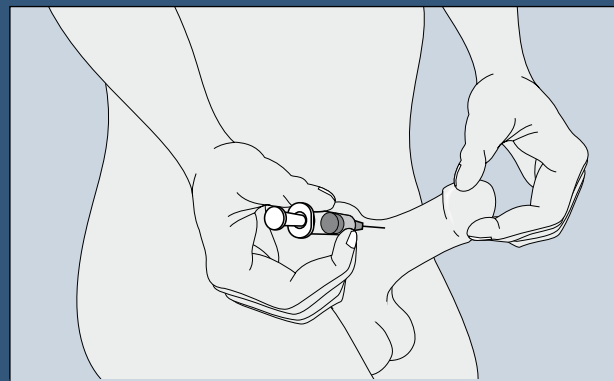


Figure 2: Intra-cavernosal injection therapy is simple and easily learned.

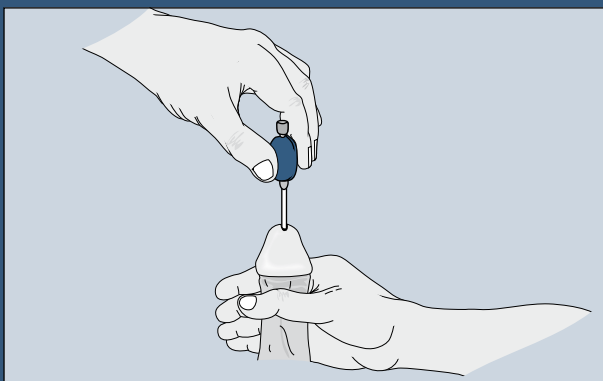


Figure 3. Administration of transurethral therapy.

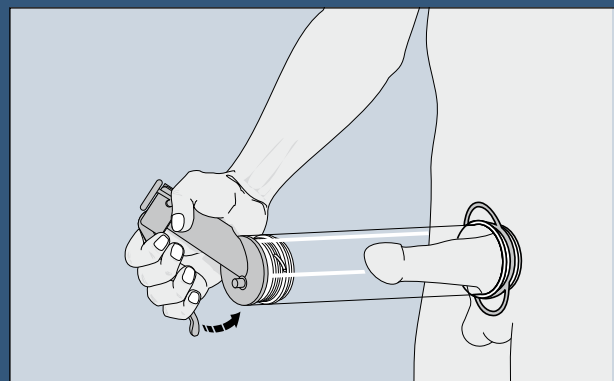


Figure 4: Vacuum therapy, a non-pharmacological treatment.

In a double-blind placebo-controlled study, Padma-Nathan et al (1997) found that, on average, 70% of men treated with transurethral alprostadil versus placebo achieved an erection, which enabled them to have intercourse and achieve orgasm. A fifth of men in this study were identified as having diabetes, although men with poorly controlled diabetes were not included.

In contrast, Werthman and Rajfer (1997) found that 67% of men using MUSE did not achieve erections that were adequate for penetration. No mention was made in this study of the incidence of diabetes as a primary organic cause.

Vacuum device therapy

Many men prefer a non-invasive treatment that does not carry the risks associated with pharmacological treatment options. One example of such a treatment is vacuum tumescence therapy.

Vacuum devices (such as Active II, Rapport and ErecAid) consist of a wide plastic tube attached to mechanism that removes air from the tube. The vacuum created enables blood to be drawn into the penis and an erection to be created. If the patient is unable to maintain the resultant erection, a rubber constriction ring is placed at the base of the penis, producing a tourniquet effect and so holding the erection (Figure 4). A variety of different vacuum devices are available, with newer ones being battery operated.

In a retrospective study, which questioned 100 men using a vacuum device, 68% were fully satisfied with the device, 94% found it straightforward and easy to use and 78% were satisfied with the rigidity of the penis for intercourse (Sidi et al, 1990).

Continued use of the vacuum device is important because, unlike pharmacological agents, the mechanical devices have to be purchased. Bodansky (1994), in his review of patient satisfaction, found that 58% of patients continued to use the pump after six months.

Like all treatments, the vacuum device does have some disadvantages. Reported side-effects include discomfort using the pump, discomfort with the constriction ring, blocked ejaculation with the constriction ring, and bruising (Baltaci et al, 1995).

Psychosexual counselling

For some men with diabetes, psychological factors alone can cause ED or convert a mild diabetic impairment into full dysfunction. Failure to address psychological and relationship issues may greatly reduce the effectiveness of the physical treatment options offered.

Psychosexual counselling can play an important role in the treatment of ED in men with diabetes. Veves et al (1995) found that 60% of diabetes patients who had ED and a psychological factor present were successfully treated with psychosexual counselling. However, McCulloch et al (1986) claim that 'psychosexual counselling alone rarely restores potency, because psychological problems are not commonly the main cause of ED in diabetes'.

It has been suggested that psychologists, psychiatrists and trained counsellors are in the best position to provide sexual counselling, but in fact all members of the diabetes team are in a position to listen to patients' accounts of their difficulties, respond positively and refer to appropriately trained personnel as required.

Conclusion

ED is a common and largely treatable condition, and although effective treatments have been available for more than a decade, it remains one of the most neglected complications of diabetes. All healthcare professionals working in the field of diabetes can have a significant impact on the quality of life of men with diabetes suffering from ED. Although none of the treatment options are ideal, they provide most men and their partners with a means to improve sexual satisfaction, provided that individuals are given the opportunity to discuss their sexual problems and to try the available treatment options at home.

Much of the literature evaluating the effectiveness of treatments for ED show encouraging results. However, it is often difficult to relate the research findings to men with diabetes, because the efficacy in this subgroup is rarely clear cut. Few research papers investigate the treatment of ED solely in men with diabetes, despite the high incidence of the condition in this group.

Further research into the sexual problems

PAGE POINTS

1 Many men prefer a non-invasive treatment option, such as vacuum therapy.

2 Vacuum therapy devices are not provided free on prescription.

3 Failure to address psychological and relationship issues can reduce the effectiveness of any treatment chosen.

4 All members of the healthcare team can unearth the distress caused by ED through questioning.

of both male and female patients with diabetes is needed, along with studies investigating the efficacy of treatment options. Work is currently being done into combination treatment options, e.g. MUSE and sildenafil, in the drive to provide further treatment choices for patients. Until such time that ED can be prevented in men with diabetes, all healthcare professionals have a duty to unearth the possible distress in people's lives by questioning and referring on as necessary. ■

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