Type 2 diabetes in men: facing the challenges

BRIAN KARET

The challenges posed by men with type 2 diabetes differ from those of women with the condition. Men are more prone to being overweight, leading to a higher incidence of diabetes, which in turn is associated with lower testosterone levels. Brian Karet discusses the implications for commissioners of primary care diabetes services.

Men are up to two and a half times more likely to have newly diagnosed type 2 diabetes than women. However, once a woman is diagnosed, the disease seems more aggressive, with higher rates of cardiovascular complications.\textsuperscript{1,2}

Data from the 1145-patient ZODIAC (Zwolle Outpatient Diabetes project Integrating Available Care) study showed that the all-cause mortality ratio was 2.15 for women (95 per cent confidence interval [CI] 1.85–2.49) compared with 1.75 for men (95 per cent CI 1.48–2.05, p=0.83). Among men, the risk factors significantly associated with mortality were age (hazard ratio [HR] 1.06, 95 per cent CI 1.03–1.09), smoking (HR 1.78, 95 per cent CI 1.23–2.57), estimated glomerular filtration rate (HR 0.97, 95 per cent CI 0.96–0.99) and macrovascular complications such as heart attacks and strokes (HR 1.51, 95 per cent CI 1.00–2.28).\textsuperscript{1}

In a separate Swedish study, data from 2383 men and 3329 women showed diabetes prevalence was higher in men at both baseline and follow-up. At baseline, 2.1 per cent of men versus 1.3 per cent of women had newly diagnosed type 2 diabetes, a 1.6-fold difference. Similarly, at follow-up, 4.2 per cent of men were newly

\textbf{Brian Karet, MSc (Diabetes Care), MRCGP, DMJ, Independent Commissioning Adviser, Bradford}
DIABETES AND METABOLIC SYNDROME

be metabolically active and diabetogenic. Recent studies have shown visceral fat to tend to deposit fat subcutaneously, increased abdominal girth, while women visceral fat more readily, leading to distribution, as men tend to accumulate that it may be related to visceral fat to insulin than women. They also consider any given BMI, men may be less sensitive about why this may be the case. For the study prompts further speculation in some populations.

The trend in the results is quite clear and supports previous studies showing that, in spite of a higher prevalence of obesity, the prevalence of diabetes in middle-aged men exceeds that of women in some populations.

The study prompts further speculation about why this may be the case. For example, the researchers consider that for any given BMI, men may be less sensitive to insulin than women. They also consider that it may be related to visceral fat distribution, as men tend to accumulate visceral fat more readily, leading to increased abdominal girth, while women tend to deposit fat subcutaneously, particularly around the hips and thighs. Recent studies have shown visceral fat to be metabolically active and diabetogenic.

LOW TESTOSTERONE LEVELS

Another factor mitigating towards poorer outcomes in men is low testosterone levels, in what is often referred to as late-onset hypogonadism. In a six-year study, 587 men with type 2 diabetes were split into three groups: those with normal total testosterone levels (above 10.4nmol/l, n=338); those with low testosterone levels (below 10.4nmol/l) who were not treated with testosterone replacement therapy (n=182), and those with low testosterone levels treated with testosterone replacement therapy for two years or more during the follow-up period (n=58). This study showed for the first time that low testosterone puts diabetic men at a significantly increased risk of death (p=0.001). Of the 182 diabetic men with untreated low testosterone, 36 died during the six-year study, compared to 31 of the 338 men with normal testosterone levels (20 versus 9 per cent). Furthermore, only five of the 58 diabetic men who were given testosterone replacement therapy died during the study (8.6 per cent), indicating significantly better survival compared to the non-treated group (p=0.049).

This is the first study to show that testosterone treatment can improve not just metabolic outcomes but survival in men with type 2 diabetes and testosterone deficiency; however, larger studies are needed to confirm cardiovascular benefit in diabetic men with low testosterone levels.

OBSTRUCTIVE SLEEP APNOEA

One of the most serious and underdiagnosed obesity-related issues in men with type 2 diabetes is obstructive sleep apnoea (OSA). Government statistics in 2010 showed that 44 per cent of men and 33 per cent of women were classified as overweight (BMI 25–29kg/m²) and almost a quarter of adults (22 per cent of men and 24 per cent of women) were obese (BMI 30kg/m² or over). One study showed an excessively high prevalence of undiagnosed OSA (86.6 per cent) among obese patients with type 2 diabetes and that waist circumference was a much better predictor of significant OSA than BMI. There is compelling evidence that OSA is a significant risk factor for cardiovascular disease and mortality.

ERECTILE DYSFUNCTION

Under-reported and underdiagnosed, erectile dysfunction is increasingly being recognised as an early marker of organic incipient systemic disease, and this is not always in men with low testosterone levels. Phosphodiesterase type 5 inhibitors are the preferred therapy for most men with organic erectile dysfunction who do not have a specific contraindication to their use, in particular concurrent use (and not prescribing) of cardioactive nitrates. In addition, the vascular or neuropathic damage associated with long duration of type 2 diabetes often leads to delayed ejaculation and anejaculation, which is commonly irreversible.

More than 50 per cent of men aged 18–35 with type 2 diabetes have lower levels of testosterone than men of the same age who do not have diabetes. Interestingly, this is not the case in men with type 1 diabetes. Not only does testosterone replacement improve libido and sexual performance, but up to 60 per cent of men who do not respond to sildenafil become responders when testosterone is supplemented. It is important to remember to check prostate-specific antigen levels regularly in men on testosterone replacement.

ENGAGING MEN WITH HEALTHCARE PROFESSIONALS

One of the biggest problems in both diagnosing diabetes in at-risk groups and maintaining good diabetes control is the interest of engagement with healthcare professionals. Although men care about their health, they often find it difficult to attend conventional clinic-based events because of occupational commitments. Also, unlike women, they have not built up relationships with healthcare teams, so trust in the people and the system needs to be built from scratch. Health screening alone is only part of the effectiveness of the service and giving the men time to talk in confidence allows a much wider range of health issues to be identified.

CONCLUSION

Men pose different challenges to women when it comes to their diabetes. Services
need to be tailored to their socioeconomic situation and there have been interesting initiatives putting chronic disease care and prevention systems into the workplace. Men are more prone to being overweight and that in itself leads to a higher incidence of diabetes, which is in turn associated with lower levels of testosterone. The ramifications and therapeutic implications of this, while being unique to men, are well within the remit of primary care diabetes services; making sure that the appropriate skills are in place should be an objective for commissioners of any comprehensive diabetes service.

Declaration of interests: none declared.

REFERENCES

4. Miyazaki Y, DeFronzo RA. Visceral fat dominant distribution in male type 2 diabetic patients is closely related to hepatic insulin resistance, irrespective of body type. Cardiovascular Diabetology 2009;8:44.