

Steps by which better overall health for men could be achieved

ROGER S. KIRBY, MIKE G. KIRBY*, PETER AMOROSO, JOHN DEAN and DUNCAN GOULD

*The Prostate Centre, London and *The Surgery, Letchworth, UK*

Accepted for publication 2 March 2006

INTRODUCTION

Men's health has become an important medical, social and political issue. On average, men die 5 years younger than women, and some reasons for this 'gender gap' are deeply entrenched and unhealthy patterns of male behaviour. In this review, we set out ways by which the urologist can interact positively with their male patients to increase their longevity and enhance their quality of life [1].

Currently, most men are very reluctant to make the adjustments that contribute to a healthy lifestyle. Too often, they allow themselves to develop central obesity and thereby lay themselves open to all the features of the metabolic syndrome (Fig. 1). They visit the doctor on average only half as often as women, and then only when symptoms serve as a 'wake-up call'. Often, the first symptom that encourages them to accept a check-up is urological, e.g. urinary frequency, urgency/flow problems, or anxieties about sexual, especially erectile, dysfunction (ED). Evaluation may reveal underlying prostate disease, obesity, diabetic tendency and/or hypertension, as well as significant dyslipidaemia. At this stage there is a risk that the urinary symptoms and/or ED might be treated purely symptomatically, with an α -blocker or phosphodiesterase type 5 inhibitor, thereby missing a crucial opportunity to address the associated risk factors and lifestyle issues.

All healthcare professionals dealing with men on a daily basis, but especially a team which focuses on urological health, are well placed to work with the patient and his partner to increase life-expectancy and enhance quality of life. Outlined below are some ways by which this could be achieved.

HEALTHY EATING AND STOPPING SMOKING

In the past 30 years, the prevalence of weight gain and obesity has increased in many of the

world's populations. The UK shows a pattern similar to that first seen in the USA, about half of adults in Britain are now estimated to be at an unhealthy weight [2]. This is probably the result of cultural beliefs, insufficient exercise, combined with an unbalanced proportion of calories/energy consumed vs energy expended. Weight gain can be subtle and insidious, increasing gradually over a long time, and is deleterious for overall health.

Obesity is estimated to shorten life by an average of 9 years, i.e. 2 years more than prostate cancer. In the UK, $\geq 6\%$ of all deaths can be attributed to obesity. Being overweight increases a man's risk of developing type 2 diabetes, high blood pressure, and several cancers (prostate included) as well as likely disturbances in lipid levels. It also increases the likelihood of osteoarthritis of the knees, hips and ankles, back pain and swelling of the legs. Although many people who are obese consume too many calories, their diet is often deficient in the nutrients essential for good health. A balanced diet includes three regular meals a day, providing lots of fruit, vegetables, whole-grains and less saturated fat. Recent studies showed that, in patients aged 70–90 years, adherence to a Mediterranean-type diet and healthy lifestyle lowered all-cause and cause-specific mortality by more than half [3].

Excessive eating is just one example of conditioning and habituation that could be described as an 'addiction'. A pharmacological addiction that is much more difficult to break is smoking. Hectoring about the hazards of smoking is unlikely to result in a durable cessation of the habit. Hypnotherapy can work for some, as can the application of willpower and cognitive techniques. The use of nicotine replacement (skin patches, gum and inhalants, etc.), used for at least 3 months while cravings abate, is far more likely to achieve the results that both the physician and patient desire. Stopping smoking is often associated with weight gain, which can be helped by counselling and strict adherence to

a programme of exercise and healthy nutrition.

EXERCISE

It is now widely accepted that regular physical exercise can reduce an individual's age-adjusted risk of mortality and morbidity from cardiovascular disease (CVD), hypertension, stroke, type 2 diabetes, osteoporosis and some cancers, while often improving lipid profiles [4–7]. Much research suggests that the improvements are greatest, especially for cardiovascular health, when an individual is exercising at their optimum level. This requires physical exertion of sufficient intensity to achieve 50–85% of one's maximum heart rate, sustained for ≥ 30 min/day, for ≥ 5 days/week. However, many individuals are very averse even to the thought of such strenuous activity. As any exercise is better than none, and the health of today's sedentary adults might be improved with relatively low levels of physical activity. For some of these men, enthusiasm for exercise and health improvement can be achieved simply by incorporating leisure activities, e.g. walking, gardening, cycling, or golf, which can be gradually increased over time to include gym work or swimming [8]. Specifically, buying a pedometer and walking 5–10 000 steps/day can be both inspiring and motivational. In addition to the physical benefits, exercise is likely to have positive psychological effects. The recent paper by Giovannucci *et al.* [9], which reported that men aged >65 years who engaged in vigorous exercise for >3 h/week reduced their risk of high-grade, advanced or fatal prostate cancer by 70%, might provide the impetus for urologists, cardiologists and others to emphasize the benefits of exercise to their patients.

SEXUAL HEALTH

Up to 52% of men aged 40–70 years will have experienced some degree of ED [10].

International research suggests that ED affects 20% of men, and in 1995 it was estimated that 150 million men worldwide were affected to some degree. As the average lifespan increases, this prevalence is expected to more than double, affecting 320 million men by 2025 [11]. ED might be the first presenting symptom of undiagnosed CVD. Atherosclerosis develops slowly, and it can take many years before it starts to compromise the flow of blood in the coronary arteries, causing cardiovascular symptoms. The arteries supplying the penis are much smaller (1–2 mm in diameter) than coronary arteries (3–4 mm), and impairment of blood flow due to atherosclerosis might be noticed in these vessels first. An insufficient blood supply to the penis reduces the ability to achieve and maintain an erection. Furthermore, ED can provide a marker for disease severity and atherosclerosis [12]. Early diagnosis of ED not only helps restore a sexual relationship and self-esteem, but also allows the earlier diagnosis of underlying CVD.

After a cardiovascular event such as a myocardial infarction, some men worry about the safety of resuming sexual activity. Men can be reassured that, generally, sex with an established partner, in familiar surroundings, is no more strenuous on the heart than several other daily activities, such as playing golf. Indeed, sexual activity can be a fulfilling way of increasing physical activity, helping to relieve stress and deepen a relationship, and it might be beneficial to cardiovascular health [13] and overall well-being, especially in a context of emotional intimacy.

LIPID PROFILE

In the UK the average cholesterol levels are currently 12% above those in the USA and the desirable level of 5.0 mmol/L is exceeded by ≈80% of adults. In the past 30 years, accumulating evidence has linked cholesterol with coronary heart disease (CHD) and CVD, with the risk of a first heart attack increasing sharply with cholesterol levels of >5.2 mmol/L.

Low-density lipoprotein (LDL) causes lipid rich plaques to form in the walls of the arteries, while high-density lipoprotein (HDL), leads to reverse cholesterol transport. The ratio of total cholesterol to HDL cholesterol should be as low as possible and certainly <5. The UK national service framework advises that, with dietary advice and pharmacotherapy, serum

LDL cholesterol levels should be lowered to <3.0 mmol/L, or by 30%, whichever is greater, and total cholesterol levels should be lowered to <5.0 mmol/L, or by 25%, whichever is greater. Increasingly, national and international guidelines are aiming for lower targets (e.g. total cholesterol 4 mmol/L and LDL 2 mmol/L). A recent meta-analysis of >90 000 patients confirmed that for each mmol/L reduction in LDL cholesterol, the risk of a myocardial infarction reduces by 19% [14]. Furthermore, recent evidence suggests that statins might have some chemopreventative effect against prostate cancer [15].

Although the new generation of statins for treating high cholesterol can be very effective, dietary modification is still important in optimizing lipid profiles. CHD is inversely related to the ratio of polyunsaturated to saturated fats in the diet. Therefore, a healthy lifestyle and diet rich in fruit, vegetables and whole-grains, and low in saturated fat, is particularly important. Fish oils might also be beneficial.

HYPERTENSION

In Western societies, rising blood pressure parallels advancing age, and hypertension is estimated to exist in 60–70% of the population aged >60 years [16]. The WHO has defined a 'normal' blood pressure as a systolic blood pressure of <140 mmHg and diastolic blood pressure of <90 mmHg. Hypertension is a significant cardiovascular risk factor and can cause complications such as ischaemic heart disease, stroke, peripheral vascular disease, renal failure and retinopathy. Complications can be reduced with careful control of blood pressure. However, because hypertension is often asymptomatic, only 36% of sufferers might be aware they have it, and of those diagnosed only 25% are actually treated for it [17].

Some lifestyle modifications can help to prevent or control hypertension. Such measures should include weight reduction, the reduction of dietary sodium, the dietary inclusion of foods rich in potassium, such as fruit and vegetables, ≥30 min of aerobic physical activity 4–5 times/week, and moderating alcohol consumption [18]. Urologists should advise patients that modest weight loss, particularly when sustained, can substantially lower the long-term risk of hypertension [19].

DIABETES

Diabetes is a disorder in which the blood glucose level is persistently raised above the normal range. It develops as a result of insufficient production of insulin by the pancreas or because the action of insulin is opposed by various factors. The number of people with type 2 diabetes is increasing rapidly, probably because people are living longer, and because of inadequate physical activity and the increasing prevalence of obesity. Worldwide, the prevalence of diabetes for all age groups is predicted to exceed 4.4% (366 million people) by the year 2030 [20]. In the UK ≈1 million people are diagnosed with diabetes, of whom ≈80% have maturity-onset, type 2 diabetes.

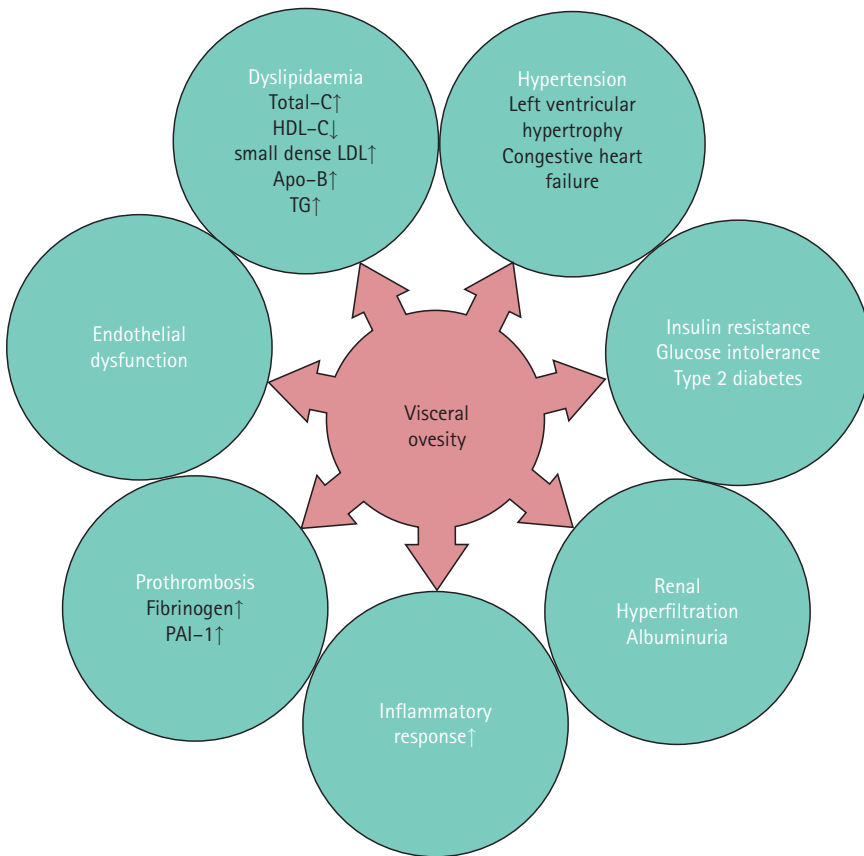
Patients with diabetes are more likely to develop various other conditions, including peripheral vascular disease, retinopathy, nephropathy, neuropathy, foot ulceration, ED and hypogonadism, and people with diabetes are more likely to die earlier than people of the same age and sex who do not have the disease. Death can be a direct result of the diabetes, from renal failure or diabetic ketoacidosis, but more often is the result of macrovascular complications associated with the disease, such as CVD, strokes and peripheral vascular disease.

Diabetes is currently estimated to cost 9% of the total healthcare budget in the UK, and its rising prevalence poses a significant economic burden in the future. Type 2 diabetes is more likely to develop in people with impaired glucose tolerance, which is considered the 'pre-diabetic state'. The pro-active, early identification of impaired glucose tolerance might provide an opportunity for intervention at a time when preventative measures can be sufficient to prevent the development of type 2 diabetes. Urologists, and all those who have an interest in mens health, have a part to play in this.

CARDIOVASCULAR ASSESSMENT

CVD is associated with advancing age, and is mainly the result of atherosclerosis. It predisposes individuals to hypertension, myocardial infarction, stroke, peripheral arterial disease as well as ED. Atherosclerosis-related diseases, especially ischaemic heart disease, are now the most common causes of death worldwide in men and women, but they usually develop a decade earlier in men. CVD

FIG. 1. The metabolic syndrome. C, cholesterol; PAI-1, plasminogen activator inhibitor-1; Apo-B, apolipoprotein B; TG, triglycerides.



is one of the greatest causes of mortality, accounting for >15 million deaths per year worldwide. The UK has one of the highest rates of CVD in the world. Although the UK is behind most other countries in preventing and treating CHD, numbers are falling, by ≈3000 deaths/year. Common risk factors for CVD include an unhealthy diet (high in saturated fat), inactivity, smoking, excess alcohol consumption, high blood pressure, high blood cholesterol, and diabetes. Many of these risk factors can be eliminated or at least ameliorated. However, some people might have a genetic predisposition to the disease, and if these are identified, precautionary steps, e.g. lifestyle modification and the use of statins, can be implemented.

HYPOGONADISM AND THE METABOLIC SYNDROME

The metabolic syndrome is characterized by central obesity, insulin resistance, dyslipidaemia and hypertension (Fig. 1). It is very prevalent in all westernised countries, and significantly increases the risk of diabetes

mellitus and CVD. Observational data suggest that the metabolic syndrome might be associated with hypogonadism in men [21], and there is a high prevalence of hypogonadism in men with diabetes. Most of the differences in testosterone levels between men with diabetes and men without diabetes might be due to low levels of sex-hormone-binding globulin. Free testosterone levels fall with increasing age and obesity, making many men with type 2 diabetes testosterone-deficient. Testosterone replacement might improve insulin sensitivity in hypogonadal, overweight men [22].

Therefore, hypogonadism appears to be an important component of the metabolic syndrome. It is interesting to consider that testosterone therapy might not only treat hypogonadism, but might also slow or halt the progression from metabolic syndrome to overt diabetes and eventually CVD, through its beneficial effects on insulin regulation, lipid profile and blood pressure [23]. In addition, in men, the use of testosterone to treat the metabolic syndrome might also

prevent urological complications commonly associated with such chronic disease states, including ED.

Waist circumference is a significant and independent risk factor for insulin resistance, replacing body mass index, waist : hip ratio and other total body fat measurements as predictors of insulin resistance. It is suggested that a waist circumference of <100 cm excludes individuals of both sexes from the risk of becoming insulin-resistant [24].

CONCLUSIONS

Outlined above are several ways by which the concerned urologist might interact positively to expand his or her role to that of a 'Men's Health doctor' [25]. As when giving up smoking, the individual patient must decide to make the break with unhealthy foods and sedentary lifestyle. All urologists dealing with men on a daily basis are well placed to create the circumstances when the 'tilting phenomenon' occurs and bad habits are put conclusively aside. Addressing central obesity alone could improve quality of life substantially and prevent many premature deaths, especially when predictions for the future prevalence of obesity are so dire [26].

CONFLICT OF INTEREST

Dr Duncan Gould undertakes consultancy work for AstraZeneca.

REFERENCES

- 1 Kirby RS, Kirby MG, Carson C, Farah R eds, *Men's Health*, 2nd edn. London: Taylor & Francis, 2004
- 2 Campbell I. The obesity epidemic: can we turn the tide? *Heart* 2003; **89** (Suppl. 2): ii22-4
- 3 Knoops KT, de Groot LC, Kromhout D *et al.* Mediterranean diet, lifestyle factors, and 10-year mortality in elderly European men and women: the HALE Project. *JAMA* 2004; **292**: 1433-9
- 4 Powell KE, Thompson PD, Caspersen CJ, Kendrick JS. Physical activity and the incidence of coronary heart disease. *Ann Rev Public Health* 1987; **8**: 253-87
- 5 Shinton R, Sagar G. Lifelong exercise and stroke. *BMJ* 1993; **307**: 231-4

- 6 Helmrich SP, Ragland DR, Leung RW, Paffenbarger RS Jr. Physical activity and reduced occurrence of non-insulin dependent diabetes mellitus. *N Engl J Med* 1991; **325**: 147–52
- 7 Wood PD, Staphanick ML, Williams PT, Haskell WL. The effects on plasma lipoproteins of prudent weight-reducing diet, with or without exercise, in overweight men and women. *N Engl J Med* 1991; **325**: 461–6
- 8 MacAuley D. *Benefits and Hazards of Exercise*. London: BMJ Books, 1999
- 9 Giovannucci EL, Liu Y, Leitzmann MJ, Stampfer MJ, Willett WC. A prospective study of physical activity and incident and fatal prostate cancer. *Arch Intern Med* 2005; **165**: 1005–10
- 10 Feldman HA, Goldstein I, Hatzichristou DG, Krane RJ, McKinlay JB. Impotence and its medical and psychosocial correlates: results of the Massachusetts Male Aging Study. *J Urol* 1994; **151**: 54–61
- 11 Dunn KM, Croft PR, Hackett GI. Sexual problems: a study of the prevalence and need for health care in the general population. *Fam Pract* 1998; **15**: 519–24
- 12 Greenstein A, Chen J, Miller H, Matzkin H, Villa Y, Braf Z. Does severity of ischemic coronary heart disease correlate with erectile dysfunction? *Int J Impot Res* 1997; **9**: 123–6
- 13 Jackson G, Betteridge J, Dean J *et al*. A systemic approach to erectile in the cardiovascular patient: a consensus statement. *Int J Clin Pract* 1999; **53**: 445–51
- 14 Baigent C, Keech A, Kearney PM *et al*, Cholesterol Treatment Trialists' (CTT) Collaborators. Efficacy and safety of cholesterol-lowering treatment: prospective meta-analysis of data from 90,056 participants in 14 randomized trials of statins. *Lancet* 2005; **366**: 1267–78
- 15 Shannon J, Tewoderos S, Garzotto M *et al*. Statins and prostate cancer risk: a case control study. *Am J Epidemiol* 2005; **162**: 318–25
- 16 Nawrot T, Den Hond E, Thijs L, Staessen JA. Isolated systolic hypertension and the risk of vascular disease. *Curr Hypertens Rep* 2003; **5**: 372–9
- 17 Petrie JR, Kirby M. Too much of a good thing: 2004 Guidance from NICE and BHS-IV on hypertension in diabetes. *Br J Diabetes Vasc Dis* 2004; **4**: 365–8
- 18 Chobanian A, Bakris GL, Black HR *et al*, National High Blood Pressure Education Program Coordinating Committee. Seventh report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure: the JNC 7 report. *JAMA* 2003; **289**: 2560–72
- 19 Moore LL, Visioni AJ, Qureshi MM, Bradley ML, Ellison RC, D'Agostino R. Weight loss in overweight adults and the long-term risk of hypertension: the Framingham study. *Arch Intern Med* 2005; **165**: 1298–303
- 20 Wild S, Roglic G, Green A, Sicree R, King H. Global prevalence of diabetes: estimates for the year 2000 and projections for 2030. *Diabetes Care* 2004; **27**: 1047–53
- 21 Makhsida N, Shah J, Yan G, Fish H, Shabsigh R. Hypogonadism and the metabolic syndrome: implications for testosterone therapy. *J Urol* 2005; **174**: 827–34
- 22 Betancourt-Albrecht M, Cunningham GR. Hypogonadism and diabetes. *Int J Impot Res* 2003; **15** (Suppl. 4): S14–S20
- 23 Simon D, Charles MA, Lahlou N *et al*. Androgen therapy improves insulin sensitivity and decreases leptin level in healthy adult men with low plasma total testosterone: a 3-month randomised, placebo-controlled trial. *Diabetes Care* 2001; **24**: 2149–51
- 24 Wahrenberg H, Hertel K, Leijohufvud BM, Persson LG, Toft E, Arner P. Use of waist circumference to predict insulin resistance: retrospective study. *BMJ* 2005; **330**: 1363–4
- 25 Kirby RS. The urologist as the advocate of men's health. *BJU Int* 2005; **95**: 929
- 26 Vasan RS, Pencina MJ, Cobain M, Freiberg MS, D'Agostino RB. Estimated risks for developing obesity in the Framingham Heart Study. *Ann Intern Med* 2005; **143**: 473–80
- Correspondence:** Roger S. Kirby, The Prostate Centre, 32 Wimpole St, London W1G 8GT, UK. e-mail: bjui@theprostatecentre.com
- Abbreviations:** ED, erectile dysfunction; CHD, coronary heart disease; CVD, cardiovascular disease; (L)(H)DL, low-density (high-density) lipoprotein.