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The making of an ageing disease: the representation of the male menopause in Finnish medical literature

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ABSTRACT
Male ageing is in focus nowadays. The aim of this study was to investigate conceptions of the male menopause (also known as andropause) in the educational and professional literature of Finnish physicians from 1982 to 2002, and the main point of interest was how the presentation of the male menopause and its treatments have changed. Published items for analysis were retrieved from the two main Finnish medical journals and from introductory gynaecology and urology textbooks using keywords for male ageing and hormones. It was found that disagreements about the male menopause have been marked. Some authors described it as a consequence of the decline in gonad functioning that comes with increased age, and some argued that we are making a disease out of normal ageing, but its association with sexual problems has risen in prominence: libido and potency disorders have recently been identified as symptoms. The treatment provided for male menopause was androgens, about which opinions diverged, especially the effect of androgen therapy on cardiovascular diseases and osteoporosis. New forms of testosterone treatment have been eagerly adopted, but opinions varied on the appropriate duration of the therapies. By the 2000s, the male menopause was increasingly likened to the female menopause, with emphasis upon the similar symptoms. While gerontological thinking largely sees the male menopause as an aspect of ageing and a normal condition, the andrological approach regards it as a treatable disease and its rapid adoption can be seen as a reflection of both private and public concerns about increased longevity.

KEY WORDS – male menopause, male hormone therapy, medicalisation, ageing society.

Introduction

During the last two decades in Finland, a new illness, the *male menopause*, has been introduced in popular magazines (Vainionpää and Topo, in

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press), and it has been widely debated in the international research literature. Featherstone and Hepworth (1985*a*, *b*) discussed the history of the male menopause; Gould, Petty and Jacobs (2000) asked if it really exists; and Oudshoorn (1997) questioned whether the menopause only applies to women. The aim of this article is to study the presentation of the male menopause in Finnish medical teaching and professional literature. The study was prompted by the belief that the 'male menopause' is an interesting example of the ways in which scientific facts are constructed and communicated, and also reflects society's growing awareness of the implications of increased longevity. It was also clear that the existence of a male menopause – also known as andropause or the male climacteric – is still disputed, and that there are disagreements about the efficacy and safety of the hormonal treatments (*e.g.* Rhoden and Morgentaler 2004; Snyder 2004).

Two acronyms have been used in the medical literature for male menopause or andropause: PADAM, partial androgen deficiency of the ageing male, and ADAM, androgen decline in the ageing male. By hypogonadism is meant 'a reduced or absent secretion of hormones from the sex glands (gonads)', in men the testes (US National Library of Medicine 2003). Earlier the term 'male climacteric' was used (Gould, Petty and Jacobs 2000: 858). Unlike women's rapid decrease in blood oestrogen levels during and after menopause, men experience a gradual decrease in plasma testosterone levels. At the age of 75 years, more than three in every four men have bio-available testosterone levels below the normal minimum of young adults (Morales, Heaton and Carson 2000; Vermeulen 2000; Tapanainen 2001).

In Finland, male hormone patches designed especially for the male menopause have been available since 1997, and a testosterone gel entered the market in 2003. By 2004, six different trade name or proprietary drugs were used for male menopause: all belong to the pharmacological group of G03B androgens. Reimbursement by the Social Security Institution of Finland is 50 per cent of the costs exceeding a fixed fee or co-payment, which was €10 in January 2003.

Population ageing, medicalisation and the male menopause

The term 'medicalisation' refers to the ways in which medicine expands into new arenas (Zola 1972). It occurs at conceptual, institutional and interactional levels (Conrad and Schneider 1980; Conrad 1992). Conceptual medicalisation is evident when medical terminology is used to define an issue and is generally used. According to Conrad and Schneider (1992), the factors determining the degree of medicalisation include the

availability of medical interventions or treatments and the extent to which the cost of medical therapies is covered by insurance. According to a critical analysis by Moynihan, Heath and Henry (2002), pharmaceutical companies sponsor new diseases and promote them to prescribers and consumers in order to extend the boundaries of treatable disease and thereby to expand the markets for new products. Montagne (1992) argued that one of the conditions promoted in this way is ageing. The *British Medical Journal* recently conducted an online poll on 'When is a disease a non-disease?'; 'ageing' was most frequently nominated, prompting the editor to comment that a non-disease is 'a human process or problem that some have defined as a medical condition but for which people may have better outcomes if the problem or process was not defined in that way' (Smith 2002: 885).

The growing population of affluent, older people has high expectations of medical care, fuelled by both consumerism and the promotion of new medical technologies by doctors and the pharmaceutical industry (Ebrahim 2002). Medical development raises the perceived potential of therapies and services, which if they are not provided by the public medical services may foster increased dissatisfaction (Luoma *et al.* 2003). Chapman (1979) and Montagne (1992) argued that some promotional campaigns for medications promise to solve the problems of health and life in mythical ways.

In Finland, as in most industrialised countries, new solutions are called for to respond to rapid population ageing and increased longevity (*e.g.* Ministry of Social Affairs and Health 2001). In fact, the Finnish older population is one of the fastest growing in the European Union (Parkkinen 2002; see also Räty *et al.* 2003), whilst the Finns retire at a relatively young age (Organisation for Economic Cooperation and Development 2001). The need for healthcare is expected to grow due to the increasing number of the 'oldest old' (Räty *et al.* 2003). The challenge is how to improve the health and functioning of the middle-aged and older people in order to slow the increase of healthcare costs. The rapid ageing of the population has generated enthusiasm for new technological solutions to the problems of society, and some at least extend the principle to human ageing (Luoma *et al.* 2003; Parkkinen 2002).

Olshansky, Hayflick and Carnes (2002) asked why male hormone replacement is so popular, given that there is no evidence that such medication is effective in preventing the ageing process, and believe that its spread reflects the boom in 'anti-ageing medicine' in the United States. Haber (2001–02) suggested that it appeals through its promises to the 'baby boomers' (born from the 1940s to the 1960s) who grew up in a youth-oriented culture, as one of the recent scientific discoveries that

seemingly (though, not necessarily) have the potential to slow the rate of human ageing. Governments are complicit, hoping perhaps that science will in some way allay the negative economic consequences that they perceive to be associated with the growing older population (Binstock 2003). In the next 50 years, the fastest growing population group in many western countries will be people aged over 80 years (Luoma *et al.* 2003).

The aim of the article is to examine how the male menopause has been constructed and described, and how the definition changed in the Finnish medical teaching and professional literature during 1982–2002. More specifically, how have the causes of male menopause and menopausal symptoms been represented? What recommendations have been given for treatment? What have been seen as the indications and contra-indications for male hormone therapy (HT)?

Material and methods

Previous studies have shown that current medical practice is reliably represented in the contents of medical journals (*e.g.* Moncrieff and Crawford 2001; Carter 2000). This paper's analysis of material on the male menopause in medical textbooks and Finnish physicians' professional journals should therefore detect change in medical knowledge and physicians' opinions about the condition and its treatment. The principal sources were six research papers, 16 editorials, 16 reviews and two letters in the two main Finnish medical journals, *Suomen Lääkärilehti [The Finnish Medical Journal]* (hereafter SLL) and *Duodecim [Journal of the Finnish Medical Society: Duodecim]* (hereafter D). The keywords used to search the journals' electronic files were 'hormone treatment', 'male', 'menopause', 'testosterone', 'andrology/andrological', and 'andropause'. In this way, 40 documents were identified for inclusion in the analysis.

A 'systematic browse' through doctors' manuals, drug catalogues and urology and gynaecology textbooks published in Finland from 1982 to 2002 using the same search terms identified another 17 eligible documents. The Finnish drug catalogue, *Pharmaca Fennica* (hereafter PF), is reprinted annually and every fifth edition (1982, 1987, 1992, 1997 and 2002) was included. *Lääkärin käsikirja [A Doctors' Manual]* (hereafter LK) was published bi-annually during the search period, and six editions from 1992 to 2002 were also included. The editions of *Therapia Fennica [A Doctors' Handbook]* (hereafter TF) published in 1986, 1991, 1994 and 1997 were also included. Finally, the relevant chapters on andrology in two introductory medical textbooks were searched, a gynaecology textbook, *Naistentaudit ja synnytykset [Gynaecology and Obstetrics]* (hereafter G) (Ylikorkala and Kauppila 2001),

TABLE 1. *The search terms used to identify text fragments in the sampled articles*

cardiovascular effects of androgens	androgens – effects on mood – depression
indications of androgens	androgen production – ageing
contra-indications of androgens	andropause – definition – hypogonadismus
advantages of androgens/testosterone	andropause – predisposal factors – getting better through healthier living habits
disadvantages of androgens	
guidelines for androgen treatment	novelty of andropause
androgens – doping	symptoms of andropause/ hypogonadismus
androgens – infertility	medicine in a man's life
androgens – osteoporosis	male-female analogy
androgens – andropause – lack of knowledge	new forms of androgens
androgens – impotence – sexuality	*Viagra* – phenomenon

and *Urologia [Urology]* (hereafter U) (Nurmi *et al.* 2002). Altogether 57 papers or documents were assembled for the study and they were loaded into a full-text file.[1]

Search terms and phrases were used to identify 95 eligible text segments in the 57 documents. Each was given a unique identifier and entered into a second database. This facilitated comparisons and analyses across the research period (Muhr 2004). The searches and the formulation of the search terms or codes were undertaken iteratively, and the final list of codes is given in Table 1. The results of the searches were entered into summary tables.

Results

The results of the search are presented thematically and with references to the individual papers and documents in the form D2001: 123 (*i.e.* letter code for the source, year of publication, and page number or range).

The definition of male menopause/andropause

In the texts published during the 1980s and 1990s, the concept of a male menopause or andropause was not specifically used and, although the term 'male climacteric symptoms' was used, there were no mentions of the causal factors. This changed during the 2000s when a paper titled 'Andropause' was published in both a medical journal and a gynaecology textbook (D2001; G2001). It proposed that several illnesses and unhealthy habits, such as smoking, excessive alcohol consumption and a lack of physical exercise, contributed to the decline of androgen levels (D2001: 1974–6; G2001: 142). The authors of *Urologia* added circulatory disorders to the predisposing factors and listed several available medications (U2002: 288).

The texts were characterised by vagueness in the definition of andropause (male menopause), but the most frequent gloss was a state of hypogonadism that emerges with ageing (*viz.* older ages), and presents symptoms such as lowered libido (SLL1997: 815). There were, however, many references to the uncertainty about whether 'andropause' was a medical condition requiring treatment or a symptom of normal ageing (D1998: 10; D2001: 1978–9). In 2001, the definition of andropause was specified as a slowly progressing process that began in midlife:

> After reaching midlife, a man's androgen production decreases significantly. The clinical state produced by this decline is called andropause. In contrast to the female menopause, andropause is a continuing, slowly progressing process. … The decline of the gonadal function is called andropause, partial androgen deficiency of the ageing male (PADAM), or androgen decline in the ageing male (ADAM)' (D2001: 1974).

The writers of the 2001 edition of the gynaecology textbook were evidently searching for the boundary between normal ageing and adult hypogonadism. The benchmark for adult testosterone levels was taken to be the normal level in younger men, with one of the textbook's authors stating that 'the levels of testosterone at the age of 70 were about 30–40 per cent lower than those of young men. … The number of men suffering from subclinical hypogonadism rises with ageing' (G2001: 138–42). By the final year of the review period, the distinction between ageing and andropause was still unclear, as was the age at which androgen levels were said to begin to decline, the range being from 40 to 80 years of age (U2002: 287). The increasing frequency over the review period of three of the key male menopausal terms is shown in Figure 1.

The proportion of men expected to experience andropause varied in the texts from 20 to 45 per cent: 'Every fifth man aged 40–70 years in our survey responded that they had 6–10 male climacteric symptoms. … The proportion that suffer symptoms increases with age, from about the age of 50 years' (SLL2000: 811). For men over 80 years of age, 30 per cent were said to have serum testosterone concentrations under the normal values (D2001: 1975). The highest cited prevalence of 'testosterone deficiency' was 45 per cent of men aged 61–70 years.

The authors of the 2002 edition of *Urologia* stressed that biochemical analyses alone were insufficient to inform practice, and that the physician's clinical findings should be instrumental. On the basis of biochemical changes, hypogonadism was said to be found in only seven per cent of men aged less than 60 years, but in 20 per cent of older men. The evidence from medical practitioners was, however, that the symptoms of andropause were far more prevalent (U2002: 287). Andropause was thus a condition to be recognised by the physician rather than biochemistry.

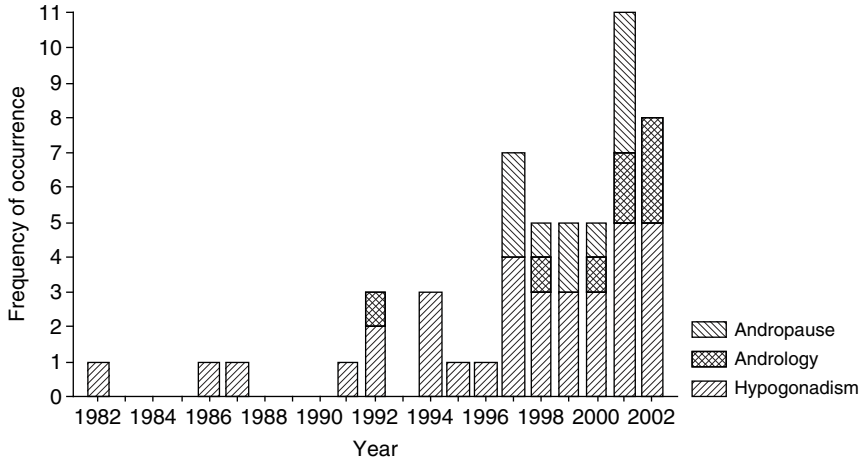

Figure 1. The frequency of occurrence of three male menopausal terms, 1982–2002.

The symptoms of andropause

Even if the concept of 'andropause' was not used during the 1980s, in 1982 androgen medication was reported to help with a lack of concentration, tiredness, poor memory, sleeplessness and sudden changes of mood (PF1982: 249). Some five years later, it was also expected to help with male climacteric symptoms like lowered libido and declining mental and physical activity (PF1987: 593). By 1992, androgens were reported to alleviate the declining physiological vigour associated with advancing age (PF1992: 404). Through the 1990s and to the present day, the list of the symptoms of andropause has expanded. By 2001 it included physical, mental and cognitive disorders:

> … the decline of vitality, tiredness, irritability, depression and libido, erectile disorders, sweating, the loss of muscular mass and strength, and the increase in fat tissue in the centre of the corpus. The weakening of memory has also been associated with lowered concentrations of androgens. … The symptoms are mild in the beginning, and they cannot necessarily be associated with hormonal changes. The lowered androgen concentrations in men cause both physical and mental changes (D2001: 1974–6).

This source, an article titled 'Andropause', also provided a list of *symptoms of ageing* in men and women. Men's were very similar to the symptoms of andropause: a lack of concentration, joint and muscular aches, general dysphoria (a state or condition marked by feelings of unease or mental discomfort), sweating, sleep disorders, tiredness, decreased morning erections, dizziness, weakening of libido and depression (D2001: 1976; G2001: 143). The inter-relation between ageing and the decline of

serum androgen levels was referred to in many texts. An SLL author wrote that the decline in serum androgen levels is associated with several changes that accompany ageing, such as depression, hypertension and sexual impotence (SLL2002: 578). In considering the aetiology of impotence, a doctor's manual reported that testosterone deficiency was responsible in around 10 per cent of the cases (LK1995: 641; LK1997: 687).

The 2002 edition of *Urologia* provided the longest list of symptoms of andropause, but still tied the syndrome to ageing. There were first mentions for: less frequent nocturnal erections, decreased potency, problems with urinating, loss in physical and intellectual capacity, tiredness, depression, emotional outbursts, general irritability, facial hot flushes, decreased participation in sports and physical activities, articular or joint aches and stiffness, osteoporotic fractures, and fat accumulation (U2002: 288). The authors added the homely comment that, 'After a meal, a man (with andropause) can fall asleep easily' (U2002: 288).

In general, the problems with sexual performance seem to have become more overt in the most recent publications, and by the 2000s were mentioned as the most important symptoms of low androgen concentrations in men (D2001: 1978). This coincided with the entry of *Viagra*® (a trade name for sildenaphil citrate) into the Finnish market and its successful marketing campaign. In response, a SLL author wrote that the new indications for certain medications had problematic financial implications, and argued that *Viagra*® destabilised the health insurance system and prompted efforts to restrain financial reimbursement (SLL1999: 3387). Another author was quite positive about *Viagra*® and welcomed the fact that erectile disorders had received more publicity, because it encouraged more men to seek relief (D2001: 1966).

Androgens: a treatment for andropause

During the study period, there was only one reference to the treatment of the male menopause in any other way than with testosterone: the authors of the 2002 edition of *Urologia* encouraged treatment without medication:

> A person should accept normal ageing. When planning treatment, one should consider if the situation could be fixed without medications. Common ways to achieve this are to encourage sports and physical activity, change to a healthier diet, lose weight, and quit smoking. Appropriate physical exercise should avoid strenuous forms of exercise that increase lactic acids, because this often induces reduced testosterone levels. … However, one must keep in mind that the problems may be complex. … Potential problems with human relations and lifestyle should be addressed (U2002: 289).

Among the 95 text segments, the reported indications for androgen treatment were: hypogonadism, sterility, potency disorders, *climacterium virile*, steno-cardiac problems in old age, *pruritus senilis* (itching genitals), *cachexy* (pervasive weakness), osteoporosis, declining physical performance and mobility, impotence, declined or missing production of androgens (*inter alia* impotence), *pruritus ani* (anal itching), hypertrophy of the prostate, decreased concentration, tiredness, memory problems, insomnia and sudden mood swings (Table 2).

There were few changes in the reported indicators from the 1980s to the 1990s, but in 1992 there was a warning that the prostate should be carefully examined before treating with androgens, because testosterone promotes malignancy (LK 1992: 574). Then in 1994, the mood-lifting effect of androgens was described when treating patients with depressive symptoms (SLL1994: 2058), although another writer claimed that even if testosterone therapy increases vitality and lifts mood, it is not prescribed on psychiatric grounds (D1997: 395–8). In the late 1990s, testosterone patches entered the Finnish market, and were recommended for treating impotence if used for 2–3 months in large dosages (LK1998: 744; SLL 1999; LK2000: 772; LK2002: 403). One patch per day was said to prevent and treat osteoporosis in men (D2000: 1780), but another document advised that the suitability of the patches for clinical use was poor (LK2002: 785), and one of the references gave the opinion that testosterone therapy *might* be indicated in osteoporosis by the lack of androgens (PF2002: 47).

The difference between libido and erectile functioning was considered with reference to treatment with androgens. Testosterone was said to be a poor general cure for impotence, but if the man had a testosterone deficiency, then treatment could be considered (D1995: 773; SLL1997: 815). After sildenaphil (*Viagra*®) became available, an article titled 'Sildenaphil is requested: how do I treat?' reported that while the drug had been a huge success, it should be kept in mind that only 10–15 per cent of impotence cases are caused by androgen deficiency (D1999: 807–9). The ease of treatment was brought up in several texts, which noted that the medication could be prescribed in primary healthcare (D2001: 1951; G2001: 144; U2002: 292).

The 1980s drug catalogues mentioned prostate cancer, oedemia, breast cancer in men and liver diseases as contra-indications for androgen treatment (PF1982: 248, 250, 480, 484; PF1987: 316, 318, 589). The 1990s catalogues added benign prostatic hypertrophy (D1997: 772). Prolactinom (the presence of the lactogenic hormone) was also mentioned as an absolute contra-indication, while probable contra-indications mentioned were polycythemia (an abnormal increase in blood cells), an abnormal

TABLE 2. *Pros and cons of androgens/testosterone therapy mentioned in the text extracts from 1982–2002*

Advantages	Disadvantages and dangers	
Widely studied (PF1982, PF1992, PF1997)	Prostatic (malign/benign) hypertrophy, prostatic cancer (PF1982, PF1987, LK1992, PF1992, D1994, LK1994, LK1996, PF1997, LK1998, LK2000, D2000, LK2002, PF2002)	May kill (D1999)
Excellent tolerance of liver (PF1982, PF1987, PF1992, PF1997, SLL2000, PF 2002)		Seborrhoea, acne (D2001, G2001, PF2002)
No harmful effect on a man's own testosterone production or spermatogenesis (PF1987, PF1992, PF1997, PF2002)	(Only) Existing prostatic cancer accelerates (D2001, U2002)	Breast swelling, tenderness, gynecomasty (D2001, G2001, PF2002)
Dihydrotestosterone is safer with reference to prostatic effects (D1995)	Oligospermia (PF1982, PF1987, PF1992, PF1997, G2001, PF2002)	Effect on lipids in the blood (D2001, G2001)
Increase in libido (D1997, D2001; PF2002, U2002)	Edema, fluid retention (PF1982, PF1987, PF1992, PF1997, D2001, G2001, PF2002)	Sleep apnea (D1999, D2001)
Increase in uninhibitedness, leadership, will for gain (D1997)	Changes in the liver function, liver toxic (PF1982, SLL 1999, D2001, G2001, U2002)	Compliance with treatment is variable due to impracticality of the medications available (D2001)
Increase in sexual fantasies, sexual arousal and in the frequency of sexual contacts, in sexual performance (D1997, U2002)	Over-excitement in order not to surpass cardiac tolerance (PF1982)	The concentrations of testosterone vary a lot in the blood when administered i.m. (intra-muscular) or p.o. (peros, by mouth) (G2001)
Increase in bone density and in muscular tissue (D2000, PF2002)	Hypercalcemia (PF1982)	Accelerates erytropoiesis, rise in haemoglobin and in haematocrit (G2001, PF2002)
Relieves cardiac pain, protects from cardiovascular diseases (SLL2000, SLL2001)	Hypercalciuria (PF1982)	Skin irritation from patches (PF2002, U2002)
Increases capacity in tolerance test (SLL2000)	Sexual overstimulation, priapism (PF1982, PF1987, PF1992, PF1997, PF2002)	Changes in blood pressure (PF2002)
Increases quality of life, general well-being, energy (SLL 2000, PF2002, U2002)	Increases the contradiction between potency and libido (TF1991)	Tiredness (PF2002)
Does not cause prostatic cancer (D2001, G2001)	Accelerates atherosclerosis (D1994, D1999, D2000)	Headache (PF2002)
Evidently safe (D2001)	Not studied enough, risks not known when used as a long-term treatment (D1994, D2001, G2001)	Depression (PF2002)
Increase in blood counts (PF2002)	Aggressiveness (D1997, SLL1999, D2001, U2002)	Restlessness, sleeplessness (PF2002, U2002)
Depression may disappear, lifts mood (U2002)	Prevents a man's own hormone production as a long-term treatment (SLL1999, PF2002, U2002)	May deteriorate cardiac hypofunction, hypertension, epilepsy and migraine (PF2002)
Blood counts stay as normal (U2002)		May cause liver tumours (PF2002)
Testosterone patches imitate the normal daily rhythm of testosterone (U2002)		

Notes: The sources are: D *Duodecim*, G *Naistentaudit ja synnytykset*, LK *Lääkärin käsikirja*, PF *Pharmaca Fennica*, SLL *Suomen Lääkärilehti*, TF *Therapia Fennica* and U *Urologia*. For further details and English translations see text. The suffix number refers to the year of publication.

profile of lipids, untreated cardiac hypofunction, obesity and insulin resistance (D2001: 1978).

The cardiovascular effects of testosterone were disputed. At the beginning of the study period, testosterone was reported to relieve stenocardiac troubles in old age (PF 1982: 248; PF1987: 316; PF1992: 402). In 1994, one document alleged that testosterone was being considered as a prime risk factor for cardiovascular diseases in men (D1994: 457), and in 1997 it was asserted that testosterone treatment decreased the amount of LDL (low density -lipoprotein) cholesterol in older men,[2] and that androgens possibly caused salt or fluid retention, so when treating with androgens, patients with latent or recognised cardiac disease should be carefully monitored (PF1997: 643).

The most strident warning came in a document titled 'Testosterone may kill' (D1999: 369). The author reported that the lethal effect of testosterone was because it 'stiffens the blood vessels'. Another article reported that testosterone relieved the chest pains of cardiovascular patients and asked whether it should be prescribed, because no established understanding of the mechanisms by which testosterone affected the body was evident. Large trials were said to be necessary before androgens could be used in the treatment of cardiovascular diseases (SLL2000: 4743). In another article, testosterone was said to increase the diameter of the coronary arteries and to increase blood flow by 15 per cent, but also that it might stimulate arteriosclerosis (D2000: 1005). Disagreements about the effects of testosterone on cardiovascular diseases continued throughout the review period. In 2001, one author concluded that the relationship between testosterone and cardiovascular diseases was much less clear in men than the effect of estrogens on women (SLL2001: 771).

Androgens: how much and for how long?

During the 1980s, androgen treatment was recommended for six to eight week periods with a four-week break between episodes, though one particular androgen preparation was also recommended for continuous treatment (PF1982: 250; PF1987: 316). The dosage was said to depend on the response, while the decisions to continue or discontinue treatment were to be made according to the individual response (PF1982: 250, 484; PF1987: 317, 589, 593). The imprecision remained in 1997:

> Because the tolerance of *Proviron*® is found to be excellent and it has no harmful effect on the function of the liver or on the testes even as a long-term treatment, one can also in other indications, if needed, use a larger dosage and also for a longer treatment period (PF1997: 404)

In 2001 specific guidelines for testosterone therapy were given. Starting androgen treatment should always be based on careful mapping of the symptoms, on a clinical examination and on laboratory test results that favour the treatment. The quantification of the testosterone levels – especially of free testosterone – was often said to aid decision-making. If a man has distinct symptoms of andropause and his concentration of testosterone in serum is less than 10 nmol/l,[3] androgen therapy was said to be often beneficial. If the concentration is between 10–15 mol/l, one can consider a three-month trial treatment. The clinical evidence was said to be the most important indicator of the response of the therapy (D2001: 1977–8). The gynaecology textbook gave a similar message but emphasised that low or normal concentrations of testosterone was not a sufficient indicator, for some men have symptoms in spite of normal levels of testosterone because of the different sensitivities and performance of the tissues (G2001: 143).

In 2002, a physicians' manual gave guidelines for androgen therapy. If a patient had symptoms of testosterone deficiency, one could treat him with testosterone on a trial basis, and assess, as within three months, the benefits to the patient and then to decide whether or not to continue the treatment (LK2002: 814). *Urologia* advised on similar lines; that if the total testosterone levels were low and the concentrations of LH (luteinizing hormone) were raised, the patient would most likely have hypogonadism that required treatment.[4] The recommended prescription of testosterone was in two to three month courses and in large amounts. The patient's reports were said to provide sufficient information about the effects of the therapy (U2002: 288–90).

Testosterone patches reached Finland in 1999 and were described in a substantial article on erectile disorders. It recommended that treatment with testosterone patches should follow the normal daily rhythm of testosterone (SLL1999: 1533). Since 1999, transdermal treatment with testosterone patches has been regularly mentioned. It was also observed that only a minority of patients with symptoms of andropause were being treated, partly because of the small selection of available medications and their impracticality. In the near future, it was argued, there would be new preparations on the market, such as testosterone gel, that would ease the treatment and probably increase the number of androgen replacement therapy users (D2001, 1974–7).

The novelty of andropause and comparisons with female menopause

In 1998, it was argued that andrology was a legitimate medical sub-specialty, and it was acknowledged that the health problems of older men

were associated with the sexual organs and a life-long exposure to testosterone. Andrologists were said to have a 'lot to offer' in the examination and treatment of the illnesses of older men (D1998: 10). The analogy between the female menopause and andropause was discussed:

> Men shall no longer laugh at women who replace their missing hormones in later life. The discussion about the declining levels of testosterone and the pros and cons of replacement therapy has already begun (SLL 1999: 3386).

> The results of female HRT have been positive, and the situation for men is not necessarily so different. The physical and mental symptoms are quite similar. The only exception seems to be sleep disorders, which are less frequently associated with male menopause (SLL2000: 811).

The difference between men and women was highlighted when a medical journal wrote that, in contrast to women, men's andropausal symptoms appeared slowly, and therefore they were not always recognised and might not be associated with the decline of male hormones (D2001: 1974). A table in an article titled 'Andropause' presented the prevalence of *ageing* symptoms in men and women aged 50–59 years, and the only major difference was in depression (64% women, 26% men) (D2001: 1976). The parallel between menopause and andropause is also implied in the latest editions of *Urologia* and (somewhat unexpectedly) the introductory gynaecology textbook, since both have included andropause (U2002; G2001).

The novelty of andropause and its treatments was commented upon in many of the documents published from the mid-1990s, with many references to the lack of treatment guidelines and outcomes information. In 1997, an author wrote that little was known about testosterone therapy and that the possible effects of testosterone on neurotransmitters had not been studied, nor its effects on behaviour and mental symptoms. There were no large trials, only single cases where testosterone therapy had been stated to lift vitality and raise mood (D1997: 395–8). The ambivalence about the treatment has continued during the last few years. A medical journal article emphasised that almost every physiological and pathological change that comes with ageing is caused by several factors, which will make it difficult to predict the effect of androgen replacement therapy on andropause. The writer recommended that, if a physician suspected androgen deficiency, a treatment for andropausal symptoms might be tried for a few months, but that unless a clear response was apparent within six months, there was no point in continuing with the treatment (or at least with the same pharmacological preparation); indeed there was a reason for not continuing, since there was no certain knowledge of the risks of long-term therapy, as for prostatic cancer (D2001: 1978; G2001: 143–4). Other writers made similar points, and commented

that the follow-up periods in the available androgen therapy trials were relatively short (G2001: 143–4).

Discussion

This literature review and analysis has shown that in the medical construction of the male menopause and its treatment, two issues remain controversial: the interpretation of normal and abnormal testosterone levels, and the criteria for starting testosterone treatment. In fact, some authors do not regard low testosterone levels as being the main criterion for testosterone treatment but rather the clinical response, *i.e.* a patient's own feelings were the best indicator of the success of the treatment. It is of course fundamentally illogical to base the decision to treat on a yet to be known outcome. Making patients' subjective feelings the indicator of the success of hormone treatment is, first, the antithesis of the logic of evidence-based medicine and, secondly, argues that success is a discursive matter and an issue of interaction between the doctor and patient. Evidence is reported in the reviewed documents that some men develop andropausal symptoms even though their testosterone levels are normal. This may indicate that practising physicians and medical students are directed towards treatments with medications without the support of evidence-based knowledge. Recent findings have shown no correlation between andropausal symptoms and serum testosterone levels (Perheentupa *et al.* 2004).

The indications for and benefits of testosterone treatment were repeatedly revised in the texts. For example, depression was presented as an indication for testosterone even though the findings of international studies disagree. In a trial performed in 2001 with depressed, hypogonadal men, the anti-depressant effects of male hormone therapy could not be differentiated from those of a placebo (Seidman *et al.* 2001; Kenny *et al.* 2004). In addition, some of the reviewed articles reported that testosterone had a positive effect on mood whilst others reported negative effects. With reference to other indications, the Finnish debate went along the same lines as recent international findings. For example, male hormone therapy (HT) was recommended only rarely for the prevention of osteoporosis, while recent studies have shown some success with male HT in improving bone density and reducing fractures, although with concerns (Amory *et al.* 2004). Memory problems were also discussed in the reviewed documents as a possible indication for male HT, but according to Kenny *et al.* (2004), no significant changes in cognitive performance were found in men receiving testosterone supplementation.

The relationship between cardiovascular diseases (CVD) and testosterone was disputed in the documents, but the arguments were vague and the views contradictory. In the research literature, the debate continues about the relationship between CVD and androgens (*e.g.* Liu, Death and Handelsman 2003) and whether or not testosterone could be used in prevention (*e.g.* Malkin *et al.* 2003). Infertility was another controversial issue: some articles claimed that testosterone treatment harms spermatogenesis and causes oligospermia, while others say that it does not. No document acknowledged the lack of information on this matter.

The sources reveal a complex but powerful process of the medicalisation of male ageing. First of all, the concept of andropause has become fairly uncontroversial in the documents published since 2000. The normalisation of this concept has occurred even though there still seems to be no solid evidence of the existence of an 'andropause' (*e.g.* Snyder 2004). Secondly, recommendations for hormonal treatments were made in the documents, and a man's normal ageing was often medicalised so as to be treatable with medicines, the effects of which are not determined (*e.g.* Rhoden and Morgetaler 2004). Thirdly, some texts recommended andropausal medication as preventive, but preventive medicine has been criticised as contributing to the medicalisation of normal life. The most apparent ethical problem, especially in the absence of a strong evidence base, is that preventive interventions may cause harm rather than give protection (Verweij 1999).

The legitimation of andrology

In September 2001, the *Finnish Medical Association* approved a new subspecialty training programme in andrology. The need was explained by the Association with a reference to 'incoherence in this field of practice': andrological problems may be treated by urologists, gynaecologists or specialists in dermatology and venereology (the science of venereal diseases). Hormone replacement therapy for ageing males was considered to be an area of interest for andrology, and among other things, the new sub-specialty was thought to be necessary to improve diagnosis and treatment of the problems of older men (Finnish Medical Association 2001; Pöllänen and Tammela 2001). Furthermore, the variable prescribing practice for hormonal treatments for male menopause was thought to be a consequence of the few available medications and the impracticality of their administration. In 2001, it was reported that new preparations would be coming onto the market that would simplify treatment and probably increase the use of androgen replacement therapy (Tapanainen 2001). The creation of the sub-specialty of andrology manifests medicalisation at the

institutional level. An organisational structure for treating the disorders of older men is at present being created in Finland, transforming normal ageing into an illness treated with hormones.

According to Carpiano (2001), *Viagra*® has created a new model of 'passive' medicalisation in which the general public has turned to the medical field for a way to combat the effects of ageing and socially-rooted problems. The high and sometimes unrealistic expectations raised by the media on the launch of the drug has also caused distress for some men (Tomlinson and Wright 2004). A high profile urologist has recommended daily *Viagra*® even to *prevent* erectile disorders (Moynihan 2003). Waitzkin (1989) suggested that, for many conditions, doctors tend to prescribe medication for a patient's problem but overlook aspects of the patient's lifestyle that may be creating the problem in the first place, *e.g.* work stress or marital problems.

The evidence from the reviewed documents is that *Viagra*® may have promoted the dissemination of testosterone treatments. On the other hand, sildenaphil citrate has replaced testosterone as one form of treatment for sexual disorders, but *Viagra*® has also raised awareness about the male sexual disorders that can be medically treated. The debate in the Finnish documents on sexuality makes one ask whether the drug – with its success in treating sexual disorders – is directing medical markets towards consumerist demands rather than clinical needs. Pharmaceutical manufactures are keen to market medicines that make a patient happy and satisfied, and thus are easier for physicians to prescribe.

According to Fleck (1979), diseases do not exist in nature, but are constructed by physicians for professional reasons. In addition, a scientific fact does not exist but develops all the time. He understood diseases as being relative, and saw the definition of a disease as arbitrary, dependent upon the thought-style of those who discussed it. Different views can be equally true, and 'scientific facts' emerge as the final result of a social process: the 'genesis and development of a scientific fact' (Löwy 1988). Fleck argued that scientific facts are constructed by distinct 'thought-collectives', each of which is composed of individuals who share a specific 'thought-style'. These different and equally well-founded 'thought-styles' can co-exist. The discovery of 'scientific facts' also depends on non-scientific facts such as religious, political or economic factors (Löwy 1988; White 1991).

The reviewed texts described the symptoms of normal ageing *and* of andropause as much the same, and it is explicitly stated that it is hard to distinguish the two. If we apply Fleck's ideas, it can be argued that here we have two different thought-collectives. 'Gerontological thinking' regards ageing as a normal condition of the life-course, whereas 'andrological thinking' considers male ageing to be a condition treatable with hormonal

medication. During their professional training, physicians enter into a thought-collective and thereafter adjust their understanding of men's mid-life and old age. The findings exemplify the way in which the discovery of 'medical facts' is influenced by non-medical factors. New medical diagnoses are the product of socio-historical circumstances and the claims made by particular interest groups; new diagnoses and therapies rarely emerge directly from new scientific discoveries (Conrad and Potter 2000). This case study has also found that health policy and healthcare professionals affect the shaping of 'a scientific fact', in other words, in the making of an ageing disease. Since this study has been limited to Finnish medical education and professional documents, we suggest that it would be useful to conduct similar analyses elsewhere. The dissemination of male hormone therapy also needs further examination. More generally, gender-specific analyses are needed to research society's responses to population ageing.

There are several causes for concern with the commercial and professional activities that seek to change public perceptions about health and illness in order to develop markets for new drugs. The cost of new drugs that are targeted at essentially healthy people is threatening the viability of publicly-funded universal healthcare systems (Moynihan, Heath and Henry 2002). This is often countered by the argument that new medicines reduce healthcare costs even if the medicines are themselves expensive, because it is cheaper to medicate people than to hospitalise them. Further, new technologies in the care of older persons are recommended especially if they support self-care (Luoma *et al.* 2003). Governments may even welcome some of society's problems being redefined as medical with the possibility of new solutions (Moynihan and Smith 2002: 859). As Arie (1981: 11–9) observed about the underlying forces, 'It is much more society's convenience that "medicalises" complex problems than the avidity of doctors to take responsibility for them'.

More than 40 years ago, C. Wright Mills explored the connections between private problems and public issues, by pointing out that the troubles a person experiences arise in the context of broader social problems (Mills 1959). We conclude that the 'male menopause' is an individualised, biologically reductionist and medicalised version of the social problem called 'the ageing society'. Solutions are sought from medical experts. Rather than attempt inter-personal, social or structural changes to alleviate symptom states, diseases and their causes, it seems preferential to prescribe medication for symptomatic relief. Montagne (1992) argued that medications were usually the simplest form of help that could be provided. In the analysed texts, the costs of male health services and medications were said to be relatively low, but the costs of reimbursement

by the Social Insurance Institution were not considered. The economic aspects of male hormone therapy should be reconsidered fully during a time when social insurance reimbursements are being seriously rethought. If there is no distinct illness called 'andropause' for which male hormones are prescribed (*e.g.* Snyder 2004), why should the state pay the expenses?

NOTES

1 Some of the articles were available in digital format, while others were scanned from a paper copy. Pictures and advertisements were excluded. The data were transferred to the *ATLAS.ti* computer programme to be processed (for details, visit http://www.atlasti.de/). All quotations are the authors' translations from the original Finnish. A full list of the 57 documents, with author(s), titles in Finnish and English translations, and publisher details is available from the authors.

2 LDL cholesterol is considered 'bad' because when an excess circulates in the blood, it can slowly build up in the inner walls of the arteries that feed the heart and brain. Together with other substances it can form plaque, a thick, hard deposit that can clog those arteries, the condition of atherosclerosis (see http://www.americanheart.org/).

3 nmol/l, nanomol(e) per litre, is a measure of a strength of a solution. In the International System of Units, a mole is the quantity of specified elementary entities (molecules, ions, electrons, etc.) that in number equals the number of atoms in 0.012 kilogram of the carbon isotope of mass 12 (approx. 6.02252×10^{23}); an amount of substance containing this many entities (*Oxford English Dictionary*).

4 A low testosterone level was defined as below 12 nanomol per litre, if measured by amount of a substance, or below 350 nanogram per desilitre if measured by weight. LH is a luteinizing protein-carbohydrate hormone that is obtained from the adenohypophysis of the pituitary gland and which in men stimulates the development of interstitial tissue in the testis and the secretion of testosterone.

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