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REVIEW ARTICLE

Sexuality and intimacy in later life – hormonal determinants

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The developed world has seen an increase in life expectancy and a general drop in fertility rates changing the population demographics in favour of a greater proportion of elderly individuals who retain an overall good health profile. The issue of sexuality in the elderly has unfortunately often been relegated to the backburner. The elderly, however, do have needs related to sexuality, and health professionals need to be tuned to the needs that often remained unspoken and unaddressed

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Introduction

Populations in the developed countries have gravitated towards an increasing proportion of elderly individuals. This shift has been engendered by a number of biological and social factors including the decreasing fertility rate caused by a tendency to have smaller families in these communities, and the increasing longevity. In the Maltese population, the mean life expectancy at birth in Malta has gone up from 78.20 years in 2000 to 81.95 years in 2015. The aim however is not simply to increase longevity but to have an increase in healthy longevity, i.e. an increase in life expectancy without activity limitation. The Health data for Malta for 2011 had shown that women and men aged 65 years were likely to enjoy a further 10.9 and 11.8 years of life respectively without activity limitation, and a further 6.0 and 3.7 years with only moderate activity limitation. In contrast, the EU27 average life expectancy at 65 years enjoying no activity limitation was 8.6 years for women and 8.6 years for men, and a further 7.7 and 5.9 years respectively with moderate activity limitation.[1] One aspect of "health living" that is often ignored completely or put on the backburner, is the issue of sexuality or the problems older people face related to sexual issues. There appears to be a general perception of an 'asexual' elderly population. Research has however shown that many older people enjoy an active sexual life.[2] The perception of an asexual elderly population is prevalent in the Maltese population. This myth defines the approach often taken by health care workers when dealing with the elderly where the issue is completely ignored unless directly addressed by the individual or couple themselves. This is very reminiscent of the 1971 British farce "No Sex, We're British" being translated into "No Sex, We're Elderly Maltese".

While the limited research suggests that many older people do enjoy an active sexual life, the available research however does suggest that increasing age is associated with a decreased interest in sex.[2-3] A study conducted in Italy also found significantly less interest in sex among the older individuals with all the 38 centenarians included in the study population admitting to having completely lost interest in sex.[4] The reasons for the apparent loss of interest in active sex with increasing age are multifactorial but include physiological alterations associated with aging and developing medical issues. This besides the psychological and social factors that potentially play an important determining role.

Endocrinological changes associated with aging

The body functions, particularly those related to sexuality and reproduction, can be said to be determined by a "puppet master" that drives the system through the effects of hormones. The biological aim of sexual activity is the need to reproduce the species, and the reproductive hormonal cascade is centred primarily for this aim – to drive the need for sexual activity during the fertile period and prepare the female's body to host the foetus. The reproductive biological age in females is determined by the follicular reserve in the ovaries, the follicles being essential to produce potential ova. Follicular reserve decreases dramatically with increasing age. A birth, the ovary is estimated to have about 1 million follicles. These decline to about a quarter of a million by the age of puberty. With increasing age, these primordial follicles undergo atresia. The follicles are supported by the granulose

cells that are responsible for ovarian hormone production. These granulosa cells similarly are depleted with increasing age along with the atresia occurring in the primordial follicles. Thus, once the ovarian follicles are depleted, ovarian hormone production also declines. In females, the reproductive hormonal cascade is determined by the cyclical interplay of the GnRH from the hypothalamus, the LH/FSH production by the pituitary, and oestrogen/progesterone from the ovaries (Figure 1).

While oestrogen and progesterone are essential for normal reproductive functions in females; testosterone, produced in the ovaries and adrenals, also affects sexual desire and function in women. The depletion of the ovarian follicles results in a gradual decline in the response to FSH stimulation and a decline in the levels of oestrogen. This is, in the perimenopausal period, initially mitigated for by a corresponding rise in FSH secretion that serves to whip the failing ovaries to continue functioning. The pituitary will at this stage fail to generate the mid-cycle LH surge resulting in anovulatory infertile cycles. Testosterone on the hand, because of the contribution from the adrenal glands, falls more slowly (Figure 2). The more gradual fall in testosterone suggests that while the hormonal drive for reproduction will decease after the menopause, sexual libido in women does not necessarily decrease at the same rate.[5]

Figure 1 The reproductive hormone cycle in males and females

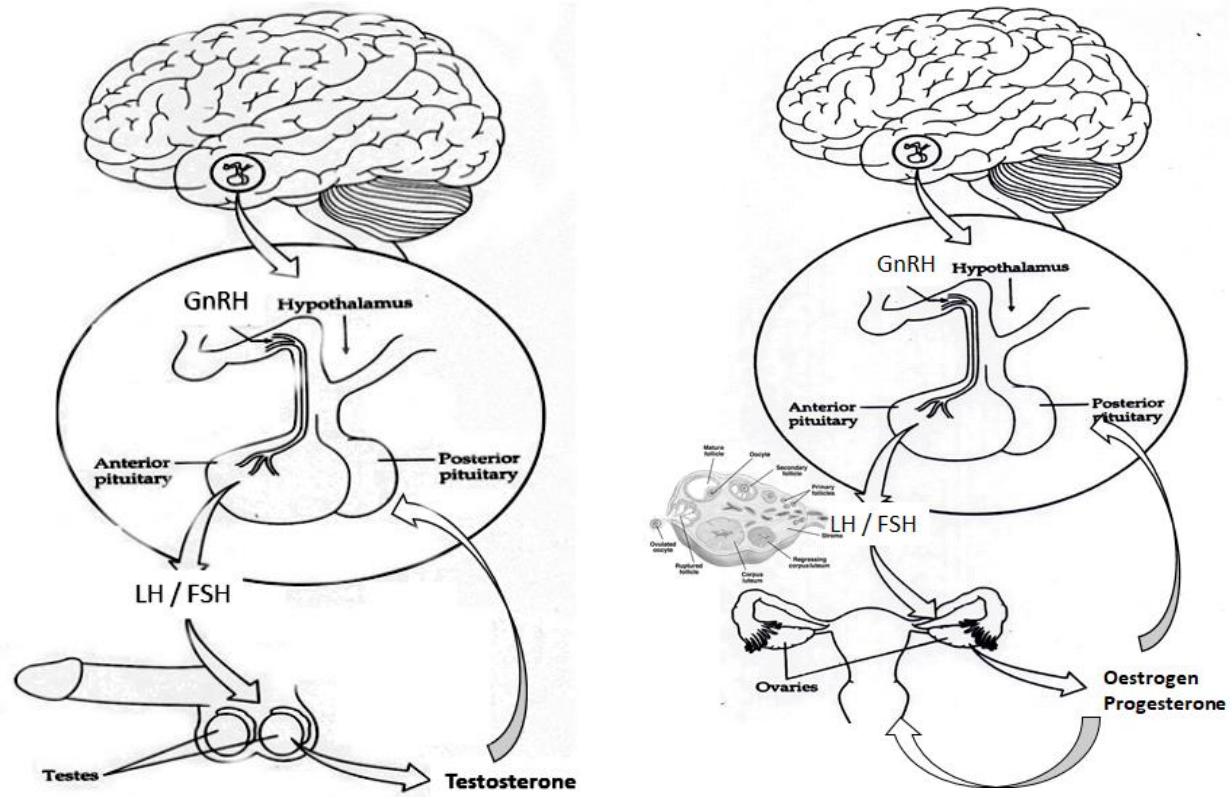
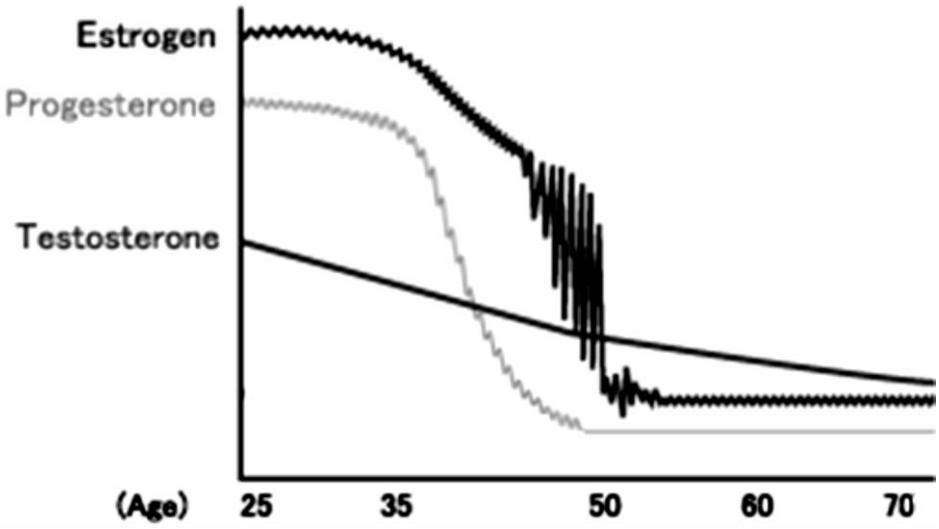


Figure 2 Hormone levels with age in women



While the reproductive endocrine system in females is characterised by a specific event that defines reproductive capability, the cessation of menstruation or menopause; no such dramatic event occurs in males. Here the changes are gradual and progressive so that one cannot truly identify the occurrence of a corresponding "andropause". In males, the reproductive hormonal cascade is determined by the interplay of the GnRH from the hypothalamus, the LH/FSH production by the pituitary, and testosterone from the testis (Figure 1). On average, male reproductive function remains normal or only slightly diminished until advanced old age (80+ years) when it then decreases. Subtle hormonal changes do however occur earlier, including a decrease in GnRH secretion, a decreased sensitivity to LH levels with a correspondingly decreased androgen secretion, and a decrease in the sensitivity of the negative feedback between the GnRH and LH hormones.[5-6] While testosterone levels do decrease with increasing age, following the same rate of decline as in females, the levels in males remain very much elevated in advanced old age (Figure 3).

These overall elevated levels maintain a relatively stable sexual libido. Testosterone levels, throughout life, are dependent on external factors that may deteriorate with increasing age. One such factor prevalent among Maltese men is adiposity with 76.28% of men falling in the overweight/obese classification. Adiposity tends to increase with advancing age.[7] An increasing BMI has been shown to be strongly associated with progressively low testosterone levels irrespective of age (Figure 4).[8]

Figure 3 Testosterone levels in females (above) and males (below) [conversion factor 100 ng/dL = 3.47 nmol/L]

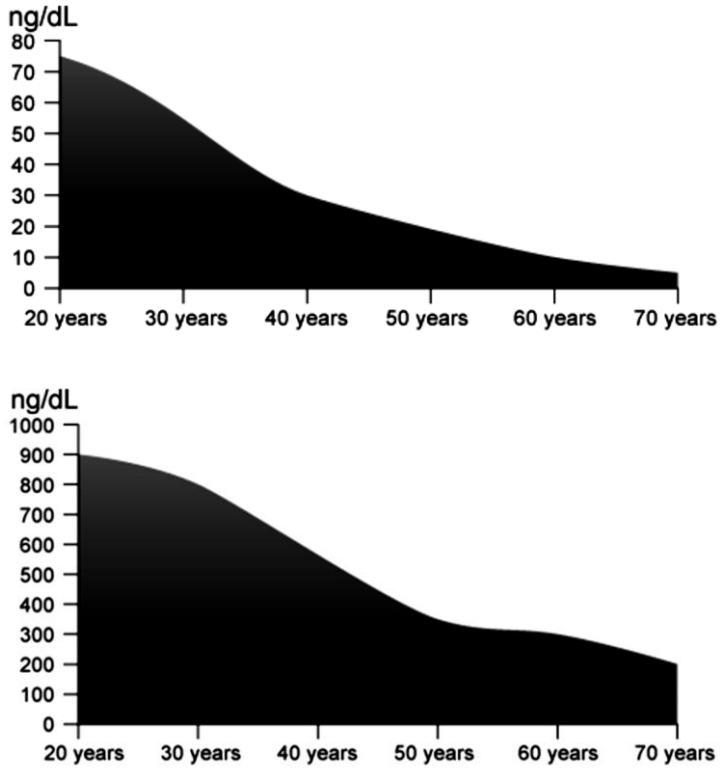
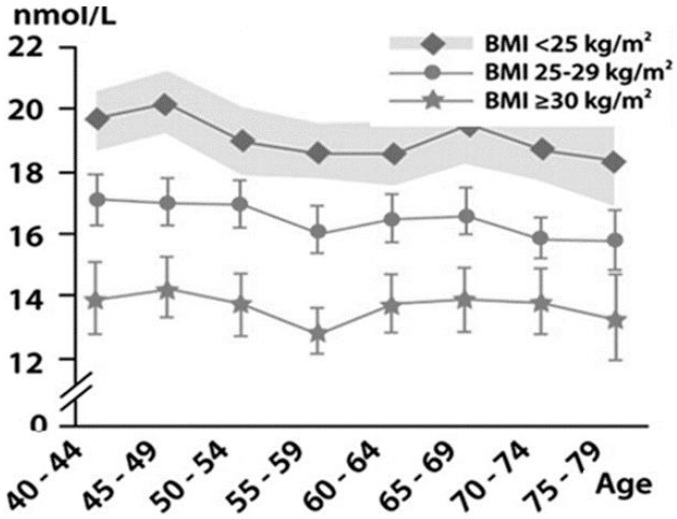


Figure 4 Testosterone levels by age and BMI [conversion factor 20 nmol/L = 576.4 ng/dL]



Physical changes associated with aging

The declining levels of oestrogen which occurs in females at menopause is associated with anatomical changes in the reproductive system. These changes include specific changes in the ovaries which become more fibrotic causing a significant decrease in size; in the uterus which exhibits a decrease in weight and volume due to a loss in the muscular component; in the vagina which exhibits a marked degree of atrophy, loss of elasticity, decreased vascularity and decreased secretions; and in the vulva which starts to show evidence of atrophy and loss of elasticity. Loss of lubrication and relative rigidity of tissue will predispose to dyspareunia; while the loss of the muscular component in the vagina predisposes to reduced orgasmic contractions. These factors, if unaddressed, will mitigate against enjoyable sexual activity irrespective of sexual libido.[9] Declining hormone levels also have systemic effects including thinning of the skin and atrophy of the sebaceous glands, atrophy of the bladder, decreased bone mass, and alteration in lipid metabolism.

The male continues to produce germ cells and testosterone well into old age, declining only with markedly advancing age. Physical changes do eventually take place because of advancing age and age-related fibrosis of blood vessels. The size and firmness of the testes decrease because of age-related fibrosis constricting the blood supply. This causes a gradual reduction in sperm production. Since erection is a purely vascular phenomenon, vascular fibrosis may also affect penile function. These anatomical changes can result in a delay in achieving an erection, while ejaculation decreases in force and volume.[10-11] Other general physical changes and medical conditions may directly or indirectly through medications administered effect penile function and contribute to erectile dysfunction.

Conclusions

The process of aging is a continuous process. While hormonal changes do occur at the end of reproductive life, these changes should not be allowed to directly influence sexual activity. Hormonal replacement therapy, systemic or local, are viable options for those elderly female individuals who wish to maintain an active sexual life. For males with erectile dysfunction, PDE5 inhibitors will help relax tight blood vessels allowing more blood to surge into the penis and facilitate an erection. Unfortunately, the social taboo about discussing sexuality especially in the elderly prevents those wishing to maintain an active sexual live from discussing the matter with their health professional. Health professionals should be more proactive regarding sexuality with their older patients and feel free to openly discuss these issues.

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