Chapter 71

Sexual Health at 40

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INTRODUCTION

Is growing older a process of stress and sexual decline or of being stress-free and being sexually active? Aging and stress, stress and aging—these two human conditions, when paired, can profoundly affect the quality of life.

GENETIC BASIS OF AGING AND NEURODEGENERATION

When events go awry, molecular processes take place that, over time, can lead to neurodegenerative disease. At the root of the problem is a fundamental process: protein folding. Since proteins are the predominant products of gene expression and provide much of the shape and functionality of the cell, their proper synthesis, folding, assembly, translocation and clearance are essential for the health of the cell and the organism. When proteins misfold, they can acquire alternative proteotoxic states that seed a cascade of deleterious molecular events resulting in cellular dysfunction. When these events occur in neurons, the consequences can be devastating. Alzheimer’s disease, Parkinson’s disease, amyotrophic lateral sclerosis, Huntington’s disease and other neuropathies involve the cytopathological appearance of intracellular and extracellular protein aggregates in the brains of affected persons. It is increasingly clear that the relevant event in these neurodegenerative diseases is a toxic gain-of-function mutation associated with the appearance of oligomers and other toxic aggregates consisting of the \( \beta \)-amyloid peptide, \( \alpha \)-synuclein, superoxide dismutase and huntingtin, respectively. The way in which these toxic species form, the processes that determine their persistence or clearance and the molecular basis of their toxicity are critical to the mechanisms of these diseases.

Cohen et al. in a landmark study proved that the association between the life span and the cellular stress response is suggested by the insulin-signaling pathway’s requirement for heat-shock factor 1 (HSF-1), the activator of the heat-shock response that induces the expression of molecular chaperones (a large class of proteins that assist in protein folding and thus guard against misfolding) during stress. Consequently, the inhibition of HSF-1 function also increases polyglutamine aggregation, resulting in toxic effects that decrease the life span of Caenorhabditis elegans. Conversely, overexpression of HSF-1 suppresses polyglutamine-mediated toxicity and extends the life span. Collectively, these observations provide support for the hypothesis that graceful aging depends on the cell’s ability to counter the effects of stress by maintaining protein folding, which in turn permits appropriate protein function.

Cohen et al. showed that activation of the insulin-signaling pathway suppresses the toxicity of aggregates of amyloid-\( \beta \), a peptide formed in the neuronal tissues.

These investigations showed that in suppressing the toxicity of aggregates, the insulin-signaling pathway activates two downstream pathways, both of which affect the fate of an aggregation-prone protein. Each pathway is triggered by a transcription factor: HSF-1 or abnormal dauer formation 16 (DAF-16). The authors showed that HSF-1 promotes disaggregation by elevating the levels of protective molecular chaperones, whereas DAF-16 enhances the formation of large, inert aggregates from toxic oligomers (Figure 1).

PSYCHOLOGICAL IMPACT OF AGING AND SEXUAL HEALTH

Masters and Johnson proved that the loss of sexuality is not an inevitable aspect of aging and the majority of healthy people remain sexually active on a regular basis until advanced old age. However, the aging process does bring with it certain changes in the physiology of the male and the female sexual response and these along with a number of medical problems that become more prevalent in the mature years, play a significant role in the pathogenesis of the sexual disorders of the elderly. The typical patient over 40 has only a partial degree of biological impairment, which has, however, been escalated into a total sexual disability by a variety of cultural, intrapsychic and relationship stressors. Fortunately, these problems are frequently amenable to an integrated psychodynamically oriented sex therapy approach that emphasizes the improvement of the couple’s intimacy and the expansion of their sexual flexibility.

ENDOGENOUS SEX HORMONES AND METABOLIC SYNDROME

In aging men, a landmark study done by Majon Muller, Diederick E, Grobbee, Isolde den Tonkelaar, Steven WJ Lamberts and Yvonne T van der Schouw proved that sex hormone levels in men change during aging. These changes may be associated with insulin sensitivity and the metabolic syndrome. The metabolic syndrome represents a constellation of lipid and non-lipid risk factors of metabolic origin and is closely linked to a generalized metabolic disorder called insulin resistance in which the normal actions of insulin are impaired. The syndrome is most important because of its association with subsequent development of type 2 diabetes mellitus and cardiovascular disease (CVD). The pathogenesis of the syndrome is multifactorial, but obesity and sedentary lifestyle and factors in concert with diet and still largely unknown genetic factors interact in the occurrence of the syndrome.

ANDROGEN DEFICIENCY, AGING AND MALE SEXUAL HEALTH

Decline of both testicular and adrenal function with aging causes a decrease in androgen concentrations in men. Epidemiological evidence has shown that sex steroid hormones are related to type 2 diabetes.
 mellitus and CVD in men. Although the mechanisms underlying the association between endogenous sex hormone levels and both diabetes and CVD are not entirely understood, it has been postulated that low levels of total testosterone, bioavailable testosterone, sex hormone binding globulin (SHBG), DHEA-S, and estradiol (E2) contribute to the age-related decrease in sexual interest and to dysfunction. These changes are components of the metabolic syndrome and insulin levels. It is proven beyond doubt that endogenous sex hormones and metabolic syndrome are linked as proven by a large-scale cross-sectional study which was done to investigate the relation of endogenous testosterone, SHBG, DHEA-S, and estradiol (E2) with metabolic syndrome, as defined by the National Cholesterol Education Program (NCEP), in middle-aged and elderly men.

Testosterone acts on the male brain to promote sexual desire and arousal. With increasing age there is a varying degree in reduction of free testosterone which is the bioavailable male hormone and this is why the possible responsiveness of neurons in the relevant areas of the brain, such as locus coeruleus, the brain stem-center for testosterone dependent arousal mechanism. These changes contribute to the age-related decrease in sexual interest and to some extent erectile function. There are age-related changes in the various aspects vascular and smooth muscle tissues related to erectile process, including an increased sensitivity to inhibitory (i.e. contractile) signals in the erectile smooth muscle.

THE IMPACT OF AGING ON SEXUAL FUNCTION AND SEXUAL DYSFUNCTION IN WOMEN

A review of population-based studies by Richard Hayes and Lorraine Dennerstein proved that the role of hormones in the effects of aging in women’s sexuality is less clear and has not been extensively studied. The effect of menopause is complex involving not only physiological changes (e.g. reduced vaginal lubrication due to reduced estrogen levels), but also an end to women’s fertility, social attitudes about the role of post-menopausal women, that vary across cultures and a transitional phase with increased vulnerability to depression. Most Indian women do not express their concerns and most of the diabetic women are all depressed. The levels of testosterone in women also decrease with aging and this also affects their sexual functions.

Scientific interest in the impact of aging on women’s sexual function and dysfunction has increased in the half century since Sir Alfred Kinsey described age-related changes in women’s sexual activities. However, a range of methodological issues limit the conclusions that can be drawn from many published studies in this area.

Aging encompasses a range of processes that have the potential to affect a woman’s sexual function. Hormonal and physiological changes take place throughout a woman’s life. These changes are particularly pronounced during puberty, menstrual cycles, pregnancy, postpartum, and the menopausal transition. Relationship factors including the presence of a partner, the partner’s age and sexual function, the length of the relationship, and a woman’s feelings for her partner may change as a woman ages. The importance of sex in her life and level of distress she feels if she suffers from sexual dysfunction may also differ as a consequence of her age. Given that so many changes take place in a woman’s life as she ages, it can be challenging to separate out which factors affect which aspects of her sexual function and to what degree. One of the major deficiencies in the literature is that many of the relevant determinants of sexual function are not measured or analyzed to separate out their effects.

New definitions of sexual dysfunctions have been developed which include personal distress as part of the definitions for vaginismus, desire, arousal and orgasmic disorders. Sexual inactivity increases with age, but it may also be a response to sexual difficulties.

John H Bancroft in his editorial on sex and aging states that as compared to studies in men studies in women have emphasized the effect of relationship factors and mental health which increasingly
are proven to be more important predictors of sexual well-being than the physiological factors of sexual arousal and response. For many women, being in a relationship, the quality of the relationship and their partner’s sexual problems are more important than their sexual responsiveness. Women also differ from what they find rewarding after having sex. Some are motivated principally by the desire of intimacy, whereas for others the desire for sexual pleasure and orgasm is equally important. These different motivational patterns may be affected in different ways by aging.

CONCLUSION
Despite of high prevalence of sexual problems at aging, a fact remains at most patients do not talk about it or do their physicians ask about it. A simple question which the author advises to the physicians to ask all their patients above 40 is this: do you have problems in making love? This shall open a Pandora’s box.

Given the age-related decline in sexual function, one might expect that sexual difficulties or dysfunctions would increase with age. This does not appear to be the case. The prevalence of most sexual difficulties or dysfunctions changes very little with advancing age and sexual pain disorders appear to decline. An age-related decline in sexually related personal distress might help explain this. Certainly, the importance of sex does appear to decline with age.

At present day scenario, a man of 40 is not at all considered old. The life expectancy has increased by many folds and unless one is in his late 60s, no one considers himself old. In fact, life begins at 40. This is a universal fact that men hardly feel themselves aged unlike women. As after 40, the graph of life is all descending; men become conscious of this and start acting more like a man in his 20s.

In the author’s opinion, we are all aware that sex and pleasure is a state of mind and not present in genitalias, so visualize yourself as a sexual being and feel good about your body dress sexy for each other, try out newer things in bed to enhance your libido, bring in variety in every initiation of your sexual act, go on dates and trips with your partner, show spontaneity, never take your spouse for granted, give your spouse time not gifts, never criticize, complain or comparing your partner and never make him have any pressure to perform and always say yes to sex.

As we get older, the way in which media portrays one could be forgiven for thinking that sex is the province of the young. This is not true. The menopause, the controversial andropause are not a matter of concern, in fact it’s a liberation time, because for women, it’s now true. The menopause, the controversial andropause are not a matter of concern, in fact it’s a liberation time, because for women, it’s now true. The menopause, the controversial andropause are not a matter of concern, in fact it’s a liberation time, because for women, it’s now true.

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