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Guest Editorial

Reproductive Compensation is a Mechanism Associated with Female Sexual Health for Life

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Gynecology focuses on studying the physiological and pathological changes of the female reproductive system during non-pregnancy periods, as well as the prevention, diagnosis and treatment of pathological changes. In the past decade, with the introduction of interdisciplinary fields (sexual medicine, women's health care), the research direction of female reproductive endocrinology has quietly changed.

In 2015, the worldwide academic community has accepted the concept that there is a material basis for women's "sexual instinct", and androgen T and estrogen E2 have become sufficient and necessary conditions for women's sexual love. And under the operation of T and E2, it compensates for the obvious reproductive disadvantages of human cycle ovulation compared with animal reflex ovulation, thus forming a reproductive compensation mechanism. From reproductive cues to lubrication and keratinization, it has had a positive and beneficial impact on sexual activity during the reproductive period.

Unfortunately, due to the non-reproductive and non-compensatory nature, after menopause, 71% of hormone T is retained and only 15% of hormone E2 remains. The necessary conditions for sexual activity after physiological changes will also shift from spontaneous secretion to reflexive secretion.

In recent years, in response to these new concepts, "reducibility" research has been conducted: In an elderly university with 5,000 students, 316 female students were randomly selected and a questionnaire was used to conduct a "Study on Sexual Enthusiasm of Middle-aged and Elderly Women". The respondents were aged 41 to 86 years old and were grouped at intervals of 10 years. Result: Only 15% of E2 remained, leading to a large number of FSD problems. The proportion of vaginal dryness or pain was 35.0%. The proportion relationship among each group was: 50 groups > 60 groups > 40 groups > 70 groups. 12.8% of the people suffered from sexual disharmony due to physiological or psychological factors. The proportion relationship among the groups was: 50 groups > 40 groups > 60 groups > 70 groups.

The proportion of those who felt uncomfortable due to long-term lack of sex was 23.4%. The proportion relationship among the groups was: 70 groups >40 groups >50 groups >60 groups. 11.1% of people think that one cannot grow old together without sex. The proportion relationship among the groups is as follows: 70 groups >50 groups >40 groups >60 groups. It shows that 71% of T can provide continuous sexual enthusiasm for postmenopausal women. According to the statistical methods of weight and frequency, it indicates that the reproductive compensation mechanism does exist and presents different attributes at different physiological stages.

At the end of the 20th century, there was already a statement in gynecology textbooks that "Recent studies have found that estrogen deficiency may have a potential risk of developing Alzheimer's disease." Despite following the principle of "filling in the gaps", no

achievements have been made in the prevention and treatment of AD over the past few decades. However, the research of gynecology has also introduced many new concepts and methods from basic disciplines.

Recently, gynecologists have turned their attention to the study of the etiology of AD using "molecular neuroscience under behavioral science". To explore the association between sexual stress and cognitive impairment caused by physiological changes during menopause. In terms of methods, drawing on the observation results of Yale School of Medicine on the neurological effects of stress on the brain, a mathematical model of stress and brain function was established. Under the dimensions of gynecology and human sexology and sociology, a relevant cohort was formed among the faculty members of a key university to study the relationship between behavior and sex stress hormones, and was compared with the original case of AD.

The results show that the hypothesis of "the risk of cognitive impairment caused by sexual stress" is overall consistent with the six etiological clues (memory, communication, suspicion, deposition, atrophy, and necrosis) in both the clinical symptoms and anatomy of the original cases of AD.

Due to the multiple characteristics of the "reproductive compensation mechanism", the perception of the solidification of female sexual ability, and the lack of understanding of sexual stress sources, using "unjustified suspicion" as a mental symptom in the process of AD may become a stigmatizing expression.

The reproductive compensation mechanism is conditionally associated with the risk of cognitive impairment caused by sexual stress. Under the macroscopic brain ecology similar to the original cases of AD, this mechanism may become a new pathogen, and the susceptible population has a huge volume, which is also an important reason why there is much more AD in females than in males.

The magnitude of sexual stress is positively correlated with the values of related hormones. Among partners who show great satisfaction during sexual behavior or have no sexual needs, they tend to be in a state of no sexual stress, and the values of stress hormones correspond to low levels. The management of "menopausal sex" and maintaining the "humanistic channel" are beneficial for reducing the risk of cognitive impairment.

"Cognitive reserve" does not directly counteract cognitive impairment, but in intimate relationships, communication skills and the confidence to refuse can play a role in reducing sexual stress.

Furthermore, this study has reached a brand-new conclusion: Sexual stress has the risk of causing cognitive impairment. Attention should be paid to the research on reproductive compensation mechanisms and their multiple characteristics, a new social support system should be reconstructed to promote women's access to appropriate sexual health information and services, and create a suitable brain ecology, thereby reducing the occurrence of cognitive impairment or AD.

With the change of the clinical research paradigm in gynecology, it has been confirmed that the reproductive compensation mechanism will have an impact on women's lifelong sexual health.

Extended Reading

1. Zha Jianzhong Li Songlin. "The risk of cognitive impairment caused by sexual stress". *Medical Research and Clinical Case Report* 6.1 (2025): 01-13.

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