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ABSTRACT

Aging is the main mechanism of diseases like degenerative disorders. However, does the term (Excess Longevity) responsible for the induction or promotion of diseases? The next letter is discussing the existence of both phenomena at the same time.

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Aging Anti Aging as Double Sword Mechanisms of Diseases

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ABSTRACT

Aging is the main mechanism of diseases like degenerative disorders. However, does the term (Excess Longevity) responsible for the induction or promotion of diseases? The next letter is discussing the existence of both phenomena at the same time.

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Aging is a continuous process that affects both multicellular and unicellular organisms. The inevitable process has been noticed in humans and bacteria [1]. This theory can be explained at least partly by increased oxidative stress and decreased antioxidant capacity. Lots of cheap and traditional supplements like curcumin have been proposed to increase the antioxidant capacity, prolong life span and exert anti-cancer, anti-inflammatory, and antimicrobial roles [2].

However, can we say that cancer is a degenerative process? It seems that this is half of the story.

Indeed, aging degenerative mechanisms explain many diseases but what about the opposite condition?

It is well known from the literature that strong antioxidant capacity demonstrated by high expression of NRF2 gene was associated with many tumors. The NRF2 expression reflecting strong antioxidant capacity promotes tumor progression, metastasis, and overcoming

chemotherapy [3]. From that point of view, a new theory can be proposed which is that chronic multifactorial diseases like cancer, schizophrenia, and pterygium have dual pathology nature. These diseases are associated with both aging and excess longevity at the same time [4].

In the update published a few weeks ago, a simple experiment has been applied on pterygium tissue samples extracted after surgery. The tissue was subjected to immunohistochemistry staining with the degenerative oxidative marker glutathione, and at the same time, the slides were stained with Topoisomerase 1 that may reflect neoplastic and stem cell activity. The results showed that secondary aggressive growing pterygium showed both degenerative and progressive nature in the same tissue [5].

The dual pathogenesis disorder can be applied to another pathology which is schizophrenia. In that very complex disorder, both degenerative and developmental changes exist in the same occasion. Schizophrenia is a well known neuro-developmental disorder where the symptoms appear in teenage. However, later on, MRI imaging of the long-standing Schizophrenic brain demonstrated white matter aging as a part of the long-standing psychosis process [6,7].

An excellent example of the dual nature of chronic disorders is lung cancer. There are common types of lung cancer one of them is squamous cell carcinoma which is related to smoking risk and more common in males and may represent over oxidative senescence mechanism, and on the other hand, there is the adenocarcinoma type that is more common in females and related to other risk factors other than smoking [8,9].

In my opinion, the biological clock seems to have different roles from the chronological clock, fast

clock induces aging-related disease model and too young cells stimulate stem cell function inducing cancer and developmental disorders, however, how both double natures of disease model occur in the same time is another more complex story.

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