

Aging and New Therapeutic Agents

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Abbreviations: AGE: advanced glycation end products; AD: Alzheimer's disease.

Introduction

Nowadays, aging disease is a burden for all countries. To prevent or treat the aging related diseases is an important part to reduce the complication of aging disease like diabetes, hypertension etc. Thus, it is very interesting issues for scientists to develop anti-aging drugs which is essential for our society. It has been described that scientists are trying to explore the drug which is beneficial for aging.

Aging is associated with an increase in the level of the advanced glycation end products (AGE) which is also related to the diabetes and cancers. The vascular injuries in diabetes are caused by both intracellular and extracellular AGE formation. There is high risk of many forms of cancers in diabetic patients. One of the commonest aging diseases Alzheimer's disease (AD) is also related to high concentration of AGE in amyloid beta (A β) plaques in the AD patient's brain. So, to measure the AGE level in human disease is easy to explore the drug which will be beneficial for aging disease in our society [1].

One of the interesting Aryurvedic medicine for aging is Curcumin (Turmeric), an active component derived from *Curcuma longa*, is used in traditional Indian and Chinese medicines for thousands of years. Researches were done in laboratory to show the effect of turmeric properties. Some studies showed that turmeric has antioxidant, anti-inflammatory and anticancer properties [2]. Moreover, turmeric possesses many medicinal uses including treatment for aging disease like Alzheimer Disease (AD). The vital constituents of turmeric are demethoxycurcumin and bisdemethoxycurcumin [3].

There was research done for curcumin effect on A β and the results showed that curcumin prevents A β aggregation and crosses the blood-brain barrier, reach brain cells, and protect neurons from various toxic insults of aging and A β in humans. Oral administration of curcumin is beneficial for many diseases including diabetes, fatty-liver disease, atherosclerosis, arthritis, cancer and neurological disorders such as depression, Alzheimer's or Parkinson's disease in some studies [4]. Because of this beneficial effect, curcumin is assumed as one of the polyphenols compounds which might have effect on human aging related disease [5].

Some researchers are doing research on the well-known antidiabetic drug, Metformin for antiaging treatment. Metformin is very useful to treat type 2 diabetes that inhibits gluconeogenesis [6]. It seems to protect against aging related diseases, cancer and inflammation [7]. One of my studies showed that metformin increased the lifespan of *Caenorhabditis elegans* [8]. But, it is necessary to show the antiaging effect of metformin in human study. It is expected that new therapeutic agent for aging will be explored in near future.

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