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Commentary

Association of Telomere Shortening with Cellular Ageing in Humans

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COMMENTARY

From last many years the scientist throughout the globe are been working in the geriatric research field to know the key factors causing ageing. There are three types of ageing process namely biological, psychological and social ageing. The biological ageing helps to understand the ageing process at molecular level. The telomere plays a key role in protecting genetic data. The somatic cells contain very low concentration of telomere which gradually gets lost during each cell division. Once length of telomere reaches to its critical limit, it shows its association with ageing of an individual. So in the current article the author has focused on relation between telomere shortening and ageing process.

The emerging researches in the gerontology field focus on many of the aspects such as biological, psychological and social changes in an individual, among these ageing process the biological ageing is a key research topic helps to understand how the genetic changes takes place in human with increased age. The DNA of an individual contains a specific protein found at the end of chromosomes called telomeres [1]. The telomeres play an important role in protection of genetic material, holding of secrets related to ageing and some medical conditions such as cancer. So by knowing the importance of telomere the author tried to focus on its association with human ageing process [2].

During normal cell division the cell undergoes DNA replication around 50-70 times [3]. With each cell division the cell loses a small part of telomeric DNA hence it acts as a biological clock of an organism which helps further helps to determine the lifespan of an individual. The cellular senescence or apoptosis is takes place when the length of telomere reaches to its critical limit which further shows its association with ageing process. The less quantity of telomerase is present in the somatic cells so they become aged very quickly. The progressive shortening of a telomerase affects the lifespan and health of a human with increased incidence of ageing diseases such as Alzheimer, coronary heart disease, cancer, diabetes, and osteoporosis [1]. The studies has been suggested that range of telomerase in WBCS is different at different age group like 8,000 to 13,000 bp in newborns, 3,000 bp in adults while an elders has 1,500 bp so by this information it is clear that the shortening of telomere is associated with ageing process in humans. As per the study of Whittemore K, the human telomeres shortening rate is of ~70 bp/yr [4]. Now-a-days the telomerase therapies are proposed to rescue degenerative phenotypes caused by telomere dysfunction [5]. The scientist have been started their study on telomerase shortening from last 40-years, still they are working on the same aspect to find out its beneficial effects [3].

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