Annals of Clinical Case Reports

Editorial
Published: 15 Feb, 2017

Therapeutical Potential of Probiotics against Inflammaging

Anam Latif* and Aamir Shehzad

National Institute of Food Science and Technology, University of Agriculture Faisalabad, Pakistan

Editorial

Aging is a pervasive intricate phenomenon that elicits from environmental, genetic and epigenetic events in various cell types and tissues and their interactions throughout life. During the last 300 years, advances in public health, nutrition and medical care have led to large-scale reductions in human mortality. The average life expectancy in developed countries has almost doubled shifting the distribution of population towards older ages. By the year 2050, the elderly are expected to comprise more than one-fifth of the world population. Chronic inflammation is a pervasive feature of aging tissue. Inflammaging describes the low-grade, chronic, general inflammation in aging, in the absenteeism of overt infection. It is a highly substantial risk factor for both morbidity and mortality in the aged population. Epidemiological evidence suggests that mild inflammation resulted due to elevation of inflammatory biomarkers such as C-reactive protein and interleukin-6 (IL-6) predictive of many aging traits like changes in body composition, energy production and utilization, metabolic homeostasis, immune senescence, and neuronal health.

Inflammaging is a determinant of the speed of the aging process and of lifespan and is highly related to Alzheimer's disease, Parkinson's disease, acute lateral sclerosis, multiple sclerosis, atherosclerosis, heart disease, age-related macular degeneration, type II diabetes, osteoporosis and insulin resistance, cancer, and other diseases. It also increases morbidity and mortality, significantly harming the health of patients, and causes a decline in the quality of life of patients.

One of the more popular directions in controlling inflammation involves targeting not human cells but microbial ones. Communities of microorganisms residing in the gut are collectively referred to as the gut microbiota. The trillions of bacteria in the intestines are known to play a role in inflammation particularly in the elderly. The gut microbiota forms a special type of internal environment in constant interaction with the host. Microorganisms residing in the human gastrointestinal tract has been estimated to be around 100 trillion (10^{14}), an order of magnitude greater than the total number of human somatic and germ cells. The gastrointestinal tract is sterile at birth. The first microbial exposure of the newborn occurs in the birth canal. The microbiota matures further during early childhood and stable "adult-like" communities are established by the third year of life. The gastrointestinal tract itself undergoes profound age related morphologic and functional changes. Enteric neurodegeneration, delayed transit time, chronic constipation, decreased pancreatic secretory activity, atrophic gastritis, hypochlorhydria, under-nutrition and immune senescence accompany old age and contribute to an altered habitat for the microbiota.

One of the best proposed options for resolution of this issue regarding gut diversity is probiotics as they play important role in inflammation particularly in elderly. Normal and beneficial microbiota can be restored and modulated by administering probiotics in human body. Probiotics are live microorganisms, which when consumed in sufficient amount, bestow health benefits to individuals. Dairy products proved to be an excellent mean for inventing nutritious foods. Such foods positively influence the host health by enhancing endurance and implantation of live microbial dietary supplements in gastrointestinal tract's microbial flora. Probiotics are of great benefit for human health and gastrointestinal disorders. They can modulate the gastrointestinal microflora in gastrointestinal tract. Due to these benefits, attempts have been made to administer probiotics to incur health benefits.

Probiotics (*Lactobacillus* or *Bifidobacterium)* attenuate the severity of inflammaging by down regulating interferon (IFN)-γ and Tumor Necrosis Factor (TNF)- α, and upregulatng interleukin (IL)-10. Immunomodulatory effect of probiotics is mediated by the reduction of nuclear factor keppa B (NF)-kB. The major anaerobes in gut are Lactobacilli and Bifidobacteria and aging is associated with the reduction of these two genera. Bacteroids are another group that can prevent inflammation by inducing Foxp3+ regulatory T cells that produce IL-10. Probiotics also decrease

OPEN ACCESS

****Correspondence:***
Anam Latif, National Institute of Food Science and Technology, University of Agriculture Faisalabad, University of Agriculture University, Main Road Faisalabad, Pakistan,
E-mail: anamlatif101@gmail.com

Received Date: *31 Dec 2016*
Accepted Date*: 10 Feb 2017*
Published Date*: 15 Feb 2017*

Citation:
Latif A, Shehzad A. Therapeutical Potential of Probiotics against Inflammaging. Ann Clin Case Rep. 2017; 2: 1272.

the expression of inflammation marker p-p65, inducible NO Synthase (iNOS) and cyclooxygenase (COX)-2. At metabolic level probiotics escalate the production of large number of molecules as short chain fatty acids i.e. butyrate which is utilitarian in keeping entire immune system balanced and alleviating inflammation. Since Probiotics play a pivotal role in mediating age related inflammation so they are efficient target to attenuate severity and intensification of chronic diseases endangered by inflammaging.