



Correlation Between Body and Bacteria

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Opinion

Medicine had interested in the pathogenic bacteria which induce simple apparent infectious diseases. But the correlation between human body and bacteria was more wide and deep in real position. So, we must reconsider our life avoiding convenient way of thinking.

Problems

The expression of cell function is depended upon the activity of mitochondria. The key of evolution has depended upon the number and shape of mitochondria is actively working in the differentiated cell by the observation of bio-imaging method because differentiated function depends upon mitochondria job. On the processing of carcinogenesis mitochondria respiratory dysfunction has inevitably appeared. To avoid cancer suffering, it is necessary for human-being to protect mitochondrial function. Nuclear DNA was covered by double membrane, but mitochondria DNA has not covered by membrane, naked DNA. So, carcinogen, radiation, ultraviolet can easily damage mitochondria DNA 10 times more fragile than nuclear DNA. Human being has named some hundreds of bacteria, but we are letting our lives by 1000 trillion intestinal bacteria, human body has constituted from 60 trillion cells, so this population is only under 1% compared with them. Furthermore, our higher animal cell is sponsored from 1~2000 α -proteobacteria. This means that higher animal cell is sponsored by many of original bacteria. So, our life is the matrix among bacteria which let our higher animal cell live along. Joshua Lederberg, novel prize (science,228,287,2000)1 have proposed that host and co-existing microbiota are collective body which are complicated with many gene information. So, we should think "super-organism" and we don't think that microbiota is bad fellow but think that the mutual relationship between host and normal flora which constitute this super-organism.

In the colon canal, 1000 trillion intestinal bacteria exist. Professor Ito has verified that colon cannot keep colon shape without 46 stuck of *Clostridium* by the comparative experiment of disinfected mouse2. So, *Clostridium* is inevitable necessary for co-existing bacteria. Third problem: When we consider why 1000

trillion intestinal bacteria live in the intestinal canal and why intestinal bacteria flora of mother and children are the same, we must consider that human development is derived from miniature of live earth, so we must think that original anaerobic earth circumstances are inherited in the colon.

Also, in the embryology, Oogonia were made of 4 million at the birth, but oogonium is gradually dying according to the grown up, only 400 oogonia were left at the age of puberty. This demonstrates the history of human-being, don't demonstrate wasteful embryo. This means that ontogeny is repeating in the colon. According to the processing of differentiation, why intestinal canal is starting to differentiate from anus place (protostome) and why intestinal differentiation become to the mouth cavity organ at the end of endodermal differentiation. These facts show that original earth circumstances preserved in the colon. In another word, colon canal is like a cradle of bacteria. As its proof, *Giardia* which was original life-being in those days of anaerobic circumstances, is leaving in the colon yet.

Correlation Between Immunity and Intestinal Bacteria

70 % of the Lymphocytes are gathering in the intestine. Main role of intestinal immunity that was the ability to discriminate which diet to intake, from which diet to expel, this function was easily bothered by cooling of the intestine: The production of IgA has intimate connection with intestinal bacteria. The evolution of Th17 immune cell has necessity of the existence of Segmented filamentous bacteria (SFB). Over 46 stuck of *Clostridium* are verified to be necessary for the grown-up T reg immune cell3.

Correlation Between Brain Function and Intestinal Bacteria

a) Lately Elaine Hsiao demonstrated the correlation between Autism spectrum disorders(ASD) and intestinal bacterial flora. ASD of mouse was suppressed by 4EPS which was produced viral infection and some intestinal bacteria and inhibit the proliferation of other intestinal bacteria. ASD was relieved by probiotics treatment. b) By the utilization of vancomycin(antibiotics), autistic syndrome is corrected, so gut microbiota, especially Disulfiram is found to be inducing autistic syndrome6.

c) As for dementia, the correlation of intestinal bacteria was reported. For example, many researchers say that fan of fermented soybeans was decreased dementia. Among longevity village in the world, fermented food was taken much. There must be direct correlation between intestinal character and health condition.

d) Multiple sclerosis disease has been reported that there is abnormality of intestinal bacterial flora in the Multiple sclerosis (MS) disease.

Correlation Between Pathogenic Bacteria and Intestinal Bacteria

Even if cholera and dysentery bacillus are existing, you can resist these bacteria when the influence of useful bacteria is stronger. So, you will become to suffer from disease because of decreas-

ing in the useful bacteria when you are utilizing antibiotics, steroid hormone and conservatives in ordinal life. Recently easy food style is degrading because of much additives. As convenient classification, we can classify, pathological bacteria, useful bacteria, opportunistic bacteria, and latent bacteria (latent infection). I will state about latent infection because this problem is very important. This latent infection is air pocket in the authorized west medicine.

Correlation Between Latent Infection and Intestinal Bacteria

Especially, when intestinal canal was cooled by cooling beverage, intestinal bacteria can easily enter intestinal wall and white blood cell and lymphocyte in the intestine.