



Is Taurine is a Pharmaco-Nutrient for HIV Positive Patients & beyond?

R C Gupta

SASRD Nagaland University, India

Abstract:

In spite of social awareness and advances in Medical sciences HIV/AIDS continue to be major health problem. A number of factors are responsible; which may include poor understanding of biology of virus its interaction with immune system, its negative impact on the development of metabolic disturbances leading to infection related amino acid imbalance. Patients with positivity for the human immunodeficiency virus (HIV) present low concentrations of antioxidant nutrients, including glutathione (GSH) and its precursors. Thus it is necessary to modulate immune system through correcting amino acids imbalance. Nutritional supplements have been designed, use and placed under broader term, immunonutrition, which subsequently constitute the term pharmaconutrition. Pharmaco-nutrients are not too many, basically extending their support as antioxidant and strengthens the 'host defence'. Glutathione is sulphur amino acids family of which taurine is an important member. Chemically, taurine is; 2-Amino Ethane Sulfonic acid having wide range of beneficial actions. Taurine in the diets prevents the decline in T-cell that occurs with aging and enhanced the proliferative responses of T cells. Taurine antioxidant action leads to 'host defence'. Taurine scavenges the phagocyte microbicidal agent HOCl to form the more stable and less toxic taurine chloramine (Taurine -Cl) thus acting as cytoprotectant, in the attenuation of apoptosis. Taurine-Cl suppresses superoxide anion and decreases both NO and pro inflammatory cytokines. As phagocytes, body Taurine comes from diet or from biosynthesis. In HIV+ patients the low plasma Taurine followed the other thiol-antioxidant pattern. Use of taurine precursors in HIV+ diets resulted in higher production of glutathione (GSH) and Taurine. The enhanced Taurine synthesis pathways seem to be a host strategy to strengthen the cellular antioxidant capacity against the HIV progression. Thus there is a urgent need to develop microbicides having Taurine-Cl and derivatives. Along with taurine several derivatives are also found to be effective in protection and a number of taurine derivatives have been synthesised with partial to significant protection; one of such series is water soluble taurine derivative with gossypol, showed reasonable inhibitory activities against HIV-1 replication, HIV-1 mediated cell-cell fusion. Development of taurine derivatives may constitute a new class of HIV inhibitors.

Biography:

R C Gupta is consultant RNB Global University Bikaner India & former vice chancellor of Radha Govind University and Pro Vice Chancellor of Nagaland Central university India, had



obtained PhD as the age of 23 years He received his Bachelor of Science in Biochemical Science, and Master of Science in organic chemistry, and Doctorate in Chemistry at Lucknow University India, on Drug Development. Dr. Ramesh Gupta is a Medicinal & Bioorganic Chemist and has worked for several years as visiting professor/Scientist in various Medical schools; Louis pasture University France, University of Arizona USA, Osaka University & Nagoya University Japan, Kyung Hee University, Korea advance institute of science and technology (KAIST) Korea, Ben-Gurion University Israel, Linkoping University Sweden, University of Mons Belgium, University of Western Australia, Sydney, University of Bergen, Norway and some others. Prof Gupta's research focuses on the Natural & Synthetic Drug Development, role of sulfur amino acids in health care, functional food, nutraceuticals and environmental Biotechnology & gender issues

Recent Publications:

1. Borbes-Santos MD, Moreto F, Pereira PC, Ming Yu Y and Burini R C 2012 Plasma glutathione of HIV patients responded positively and differently to dietary supplementation with cysteine or glutamine Nutrition 28,753-756
2. Dudani AK, Martyres A and Fliss H 2008 Rapid Preparation of Preventive and Therapeutic whole-Killed Retroviral vaccines using the microbicide Taurine-chloroamine AIDS Res Hum Retroviruses 24.635-642
3. Yang J, Li LL, Li JR, Yang JX, Zhang F, Chen G, Yu R, Ouyang WJ and Wu SW 2018 Synthesis and biological evaluation of water-soluble derivatives of chiral gossypol as HIV fusion inhibitors targeting gp41, Bioorg Med Chem Lett, 28,49-52

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