Extended Abstract Journal of Geriatric Research 2018
Vol.2 No.2

Brain nutrition, aging and neuroplasticity: The clinical orthomolecular aspects

Roni Lara Moya
CESPU University, Portugal

The state-of-the-art advances in neuroscience and anti-aging medicine show that the brain can adapt to chronic stress by increasing its neuroplasticity capacity. Neuroplasticity allows the neurons in the brain to compensate for injury and disease and to adjust their activities in response to new situations or to changes in their environment. The aging brain can adapt through cellular defense mechanisms, such as DNA repair, release of neurotrophins (BDNF, IGF-1), and promotion of neurogenesis, and also through the capability of the dendrites and synapses to change in response of the environmental demands, including nutrition. The brain's perfect immunity regulation by the microglia and the central nervous system's antioxidant capacity enhancement depends on several concepts, including the best nutritional foods and supplements, hormones, physical activity and learning procedures. The orthomolecular medicine establishes the use of the correct molecules to keep the perfect physiological and biochemical function of the body. The aim of this talk is to reveal the biochemical and immunological mechanisms behind the brain aging and to address the best clinical orthomolecular protocols to prevent the neurodegenerative diseases and stimulate the neuroplasticity with the use of dietary substances, natural immune-modulatory molecules and bioidentical hormones.

Introduction

Neuroplasticity is that the state of brain's ability to reorganize itself by forming new neural connections throughout life. Neuroplasticity allows the neurons (nerve cells) within the brain to catch up on injury and disease and to regulate their activities in response to new situations or to changes in their environment. Brain reorganization takes place by mechanisms like "axonal sprouting" during which undamaged axons grow new nerve endings to reconnect neurons whose links were injured or severed. Undamaged axons also can sprout nerve endings and connect with other undamaged nerve cells, forming new neural pathways to accomplish a needed function. Neuroplasticity, also referred to as brain plasticity, or neural plasticity, is that the ability of the brain to undergo biological changes, ranging from the cellular level (i.e., individual neurons) all the thanks to large-scale changes involving cortical remapping. Such changes often [quantify] happen as a results of psychological experiences. Examples of neuroplasticity include brain changes resulting from learning replacement ability, changes resulting from sociocultural conditioning influences, as well as changes which will happen as a results of experiencing psychological stress. The adult brain isn't entirely "hard-wired" with fixed neuronal circuits. There are many instances of cortical and subcortical rewiring of neuronal circuits in response to training also as in response to injury. there's solid evidence that neurogenesis (birth of brain cells) occurs within the adult, mammalian brain—and such changes can persist well into adulthood .The evidence for neurogenesis is especially restricted to the hippocampus and neural structure , but current research has revealed that other parts of the brain, including the cerebellum, could also be involved also .However, the degree of rewiring induced by the mixing of latest neurons within the established circuits isn't Known, and such rewiring could be functionally redundant.There is now ample evidence [citation needed] for the active, experience-dependent re-organization of the synaptic networks of the brain involving multiple inter-related structures including the cerebral mantle . The precise details of how this process occurs at the molecular and ultrastructural levels are topics of active neuroscience research. The way experience can influence the synaptic organization of the brain is additionally the idea for variety of theories of brain function including the overall theory of mind and Neural Darwinism. The concept of neuroplasticity is additionally central to theories of memory and learning that are related to experience-driven alteration of synaptic structure and performance in studies of conditioning in invertebrate animal models like Aplysia.

Orthomolecular medicine may be a sort of medicine that aims to take care of human health through nutritional supplementation. The concept builds on the thought of an optimal nutritional environment within the body and suggests that diseases reflect deficiencies during this environment. Treatment for disease, consistent with this view, involves attempts to correct "imbalances or deficiencies supported individual biochemistry" by use of drugs like vitamins, minerals, amino acids, trace elements and fatty acids. The notions behind orthomolecular medicine aren't supported by sound medical evidence, and therefore the therapy isn't effective; even the validity of calling the orthomolecular approach a sort of medicine has been questioned since the 1970s.

The approach is usually mentioned as therapy ,because its practice evolved out of, and in some cases still uses, doses of vitamins and minerals repeatedly above the recommended dietary intake. Orthomolecular practitioners can also incorporate a spread of other sorts of treatment into their approaches, including dietary restriction, megadoses of non-vitamin nutrients and mainstream pharmaceutical drugs. Proponents argue that non-optimal levels of certain substances can cause health issues beyond simple vitamin deficiency and see balancing these substances as an integral a part of health.

Conclusion

Proponents of orthomolecular medicine strongly dispute this statement by citing studies demonstrating the effectiveness of treatments involving vitamins, though this ignores the assumption that a traditional diet will provide adequate nutrients to avoid deficiencies, which orthomolecular treatments aren't actually associated with vitamin deficiency.

Biography

Roni Lara Moya has done his studies in Biomedicine from the University of Mogi das Cruzes, Sao Paulo. He has done his specialization in Anti-Aging Medicine from Seville University, Spain. He completed his Master of Science in Molecular and Cellular Immunology and Biology from the University of Coimbra, Portugal-Master of Science in Clinical Advanced Nutrition from the University of Barcelona, Spain. He did his PhD in Biomedicine and Immunology from the Gulbenkian Institute of

Science and Coimbra University. He is the Coordinator of Orthomolecular Medicine of ReGenera Research Group for Aging Intervention. He is the Professor and Director of the Graduation Program in Orthomolecular Therapy - CESPU University, Portugal. He is the Scientific Advisor for Nutraceuticals and Cell Therapy Companies in Europe.

Email: info@ronimoya.com