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Exploring the impact of hyper homocysteine mia in cancer management

Abstract:

Homocysteine (Hcy) is a sulfur-containing toxic amino acid derived from the metabolism of Methionine (Met). Hcy levels are broadly categorized as moderate (16 to 30 µmol/L), intermediate (31 to 100 µmol/L), and severe (over 100 µmol/L) [1]. Chronic elevation in Hcy concentration or its metabolites may cause Hyperhomocysteinemia (Hhcy) and Homocystinuria. Age, gender, family history of stroke, serum folate, vitamin B12 deficiencies, and serum creatinine are important determinants of Hcy concentrations in the body [2, 3]. Hhcy is associated with an increased risk of diabetes, osteoporosis, cardiovascular disease, hip fracture, cognitive decline, chronic kidney disease, hypothyroidism, neurodegenerative disorders, oxidative stress, cancer, and dislocation of lenses [4, 5, 6]. In vitro study shows Hhcy modulates the blood sugar levels in circulation [7, 8]. Hhcy is closely associated with the abnormality of Diabetes [9, 10, 11]. Vitamins B, Folate, and Choline are the key factors that regulate Hcy metabolic pathways. The supplementation of vitamins B6, B12, and folic acid has been clinically proven to lower Hcy levels in the circulation while the deficiencies in any of these vitamins might lead to an increased risk of Hcy concentration [12, 13, 14]. Hcy metabolism is also found linked to the genetic polymorphism of genes Methylene Tetrahydrofolate Reductase (MTHFR), Methionine Synthase (MTR), and Cystathionine β-Synthase (CBS) [15, 16, 17]. This study aims to establish the association of Hcy metabolism with Cancer management.

Biography

Anurag Mishra has completed his Ph.D. from the Department of Biochemistry, University of Allahabad, India. Currently he is working as a researcher in the same Department. He is Assistant Professor at the Department of Biochemistry, ISD College, University of Allahabad, India. He has more than 6 years of teaching and 10 years of research experience in Cancers, Osteoporosis, Oxidative Stress, Nicotine, and Genetic Polymorphism. He has over 15 publications in prestigious journals including book chapters and has been serving as an editorial board member in repute journals. He has also presented many papers in national and international conferences.