

Lymphocytic Chromosomal Instability in Sporadic Gastrointestinal Tract (GIT) Cancer Patients and their First-Degree Relatives

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ABSTRACT The present study was an attempt to assess utility of chromosomal instability in peripheral blood lymphocytes of first-degree relatives (FDR) of sporadic gastrointestinal tract (GIT) cancer patients for genetic surveillance. Standard lymphocyte culture technique was used for the purpose. Cultured peripheral blood lymphocyte metaphases were scored for aberrations in 10 sporadic cases of GIT cancer patients (6-esophageal, 1-gastric, 2-rectum and 1-cecum), 10 first-degree relatives and 10 healthy unrelated controls. There were significantly increased number of aberrations in cancer patients as compared to FDRs and controls. A perceptible increase in the level of metaphases with structural aberrations, including gaps, breaks, rings, centromeric separation and terminal deletions, was observed in first-degree relatives of cancer patients as compared to healthy unrelated controls taken from the same geographical area. There was high frequency of aberrations, mainly structural aberrations, involving specific chromosomes in first-degree relatives and in cancer patients. Majority of aberrations were at chromosomal loci harboring genes involved directly or indirectly in tumorigenesis, thus indicating the probability of a constitutional chromosomal instability in first-degree relatives of even sporadic GIT cancer patients.