

Non-random Chromosomal Aberrations in Peripheral Blood Leucocytes of Gastrointestinal Tract and Breast Cancer Patients

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ABSTRACT Chromosomal instability was studied in cultured peripheral blood leucocytes to assess whether peripheral blood had non-random cytogenetic aberrations as observed in tumor tissue. The study was conducted on sporadic breast and gastrointestinal tract cancer patients from an area having increased incidence of these cancers. The study sample was of 38 sporadic (26 gastrointestinal tract and 12 breast) cancer patients and 30 controls subjects. Cancer patients had significantly increased (20-68%) aberrant metaphases compared to controls (6.2%). In patients, the aberrations seen were loss or gain of chromosomes, polyploidy, chromatid breaks and gaps, acentric fragments, marker chromosomes, double minutes and acrocentric associations. In oesophageal cancer loss of chromosome 2, 7q-, 10, 11, 12, 15, 17, 19, 21, and Y and gain of chromosome 3, 4, 10, 19, and 22; in gastric cancer loss of 11q and X, gain of extra C group like marker chromosome and in breast cancer loss of 1, 2, 5, 7, 11, 12, 13, 15, 16, 18, 22, and X and gain of chromosome 2q, 13, 19 and 20 were seen. Chromatid breaks were seen on chromosomes 1p, 2p, 2q and 4q while chromatid gaps were on chromosomes 1p, 2p, 3p, and 3q only. Aberrations involving specific chromosomes i.e. 2, 7, 11, 12, 15, 19, 22 and X in lymphocytes of cancer patients having cancers of diverse sites indicate that the patients probably have a constitutional chromosomal instability which participates in cancer predisposition and there is involvement of some common genes in tumor initiation and development.