Leukaemia Section
Short Communication

+19 or trisomy 19
Edmond SK Ma, Thomas SK Wan

Hematology Division, Department of Pathology, The University of Hong Kong, Queen Mary Hospital, Hong Kong, P.R. China (ESKM, TSKW)

Published in Atlas Database: June 2003
Online updated version: http://AtlasGeneticsOncology.org/Anomalies/tri19ID1039.html
DOI: 10.4267/2042/37991
This work is licensed under a Creative Commons Attribution-Noncommercial-No Derivative Works 2.0 France Licence.
© 2003 Atlas of Genetics and Cytogenetics in Oncology and Haematology

Disease

Trisomy 19 (+19) as a sole karyotypic aberration is strongly associated with myeloid disorder. In a previously published literature review, among 31 patients with isolated +19, 25 were diagnosed with myeloid malignancy, including acute myeloid leukaemia (AML) in 14 cases and myelodysplastic syndrome (MDS) in 11 cases. Four out of the 14 AML patients had a preceding MDS phase, with +19 appearing at the time of leukaemic transformation. None of the MDS or AML cases, however, had a history of exposure to radiotherapy and chemotherapy. Hence isolated +19 is associated with a subgroup of de novo myeloid disorder, in which the clinical characteristics and prognostic impact require further delineation.

As a secondary or additional abnormality, +19 is frequently encountered in chronic myeloid leukaemia (CML). Though not as common as trisomy 8, i(17q) and extra Ph chromosome, +19 is never-theless seen in up to 15% of CML patients with additional abnormalities.

Frequent gain of chromosome 19 or 19q was recently detected by comparative genomic hybridization in 4 out of 12 (33.3%) patients samples of acute megakaryoblastic leukaemia (AML-M7) and 9 out of 11 (81.8%) megakaryo-blasic cell lines. In none of the primary patient samples was the abnormality detected by G-banding analysis. In another study on childhood and adult AML-M7, +19 was detected in 7 out of 53 patients, although as an additional abnormality in all cases. It appears +19 may play a role in the pathogenesis of megakaryoblastic leukaemia.

Etiology

Isolated +19 is probably associated with de novo myeloid disorders, as none of the AML and MDS cases with this abnormality reported had a history of prior radiotherapy or chemotherapy exposure.

Prognosis

Although isolated +19 is strongly associated with myeloid disorders, most probably de novo disease, its prognostic significance requires further elucidation.

References


Nimer SD, MacGrogan D, Jhanwar S, Alvarez S. Chromosome 19 abnormalities are commonly seen in AML, M7. Blood. 2002 Nov 15;100(10):3838; author reply 3838-9

This article should be referenced as such: