

Trisomy 19

Clinics and Pathology

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 nevertheless 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%) megakaryoblastic 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.

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