t(15;17)(q22;q21) in treatment related leukemia

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Published in Atlas Database: October 2003
Online updated version : http://AtlasGeneticsOncology.org/Anomalies/t1517q22q21TreatRelID1298.html
DOI: 10.4267/2042/38051

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Identity

Note: This data is extracted from a very large study from an International Workshop on treatment related leukemias - restricted to balanced chromosome aberrations (i.e.: -5/del(5q) and -7/del(7q) not taken into account per see), published in Genes, Chromosomes and Cancer in 2002.

t(15;17)(q22;q21) (or t(15;17)(q24;q21), since PML sits in 15q24, and RARA in 17q21) Top: G-banding - Courtesy Diane H. Norback, Eric B. Johnson, and Sara Morrison-Delap, UW Cytogenetic Services; Bottom and right: R-banding and FISH - Courtesy Hossein Mossafa.
Clinics and pathology

Disease
Treatment related myelodysplasia (t-MDS) or acute non lymphocytic leukaemias (t-ANLL).

Note
The study included 41 cases; t-MDS with progression to ANLL accounted for 7% and t-ANLL for the remaining 93% the ANLL subtype was M3 in all but one case; no case of acute lymphoblastic leukaemia.

Epidemiology

\( t(15;17)(q22;q21) \) was found in 8% of t-MDS/t-ANLL; sex ratio: 15M/26F.

Clinics
Age at diagnosis of the primary disease 46 yrs (range 18-79); age at diagnosis of the t-MDS/t-ANLL: 49 yrs (range 19-81). Median interval was 29 mths (range: 9-175). Primary disease was a solid tumor in 71% of cases (breast cancer in particular) and a hematologic malignancy in 27%, treatment was radiotherapy (29%, a high proportion compared to other groups), chemotherapy (17%), or both (54%). Treatment included topoisomerase II inhibitors in 49% of cases and alkylating agents in 59%.

Prognosis
Median survival was 29 mths. Outcome was better than the outcome of patients with 11q23 rearrangement, 3q21q26 rearrangement, 12p13 rearrangement, \( t(9;22), t(8;16), \) or a \( 21q22 \) rearrangement) and similar, during the first 2 yrs to that of the inv(16) treatment related leukemias.

Cytogenetics

Additional anomalies
The \( t(15;17) \) was found solely in 59% of cases; additional anomalies were: +8 in 12%, -5/del(5q) in 5%, or -7/del(7q).

Result of the chromosomal anomaly

Hybrid gene
Description
5' PML -3' RARA.

References

This article should be referenced as such: