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Leukaemia Section
Short Communication

3q21q26 rearrangements in treatment related leukemia

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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.

Clinics and pathology

Disease

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

Note: The study included 17 cases; t-MDS without progression to ANLL accounted for 18%, t-MDS with progression to ANLL for 18% and t-ANLL for the remaining 64% (M2 or M4 mainly); no case of acute lymphoblastic leukaemia.

Epidemiology

3q21q26 rearrangements were found in 3% of t-MDS/t-ANLL; sex ratio: 4M/13F.

Clinics

Age at diagnosis of the primary disease 40 yrs (range 18-69); age at diagnosis of the t-MDS/t-ANLL: 51 yrs (range 22-80). Median interval was 104 mths (range: 48-217). Primary disease was a solid tumor in 47% of cases and a hematologic malignancy in 53% (Hodgkin disease and non Hodgkin lymphoma in particular), treatment was chemotherapy (18%), radiotherapy (29%), or both chemotherapy and radiotherapy (53%). Chemotherapy included topoisomerase II inhibitors in 42% of cases and alkylating agents in 100%.

Prognosis

Median survival was 7 mths, with 30% of patients surviving at 1 yr, and 20% at 2 yrs.

Cytogenetics

Additional anomalies

3q21q26 rearrangements included inv(3)(q21q26) in 71% of cases, t(3;3)(q21q26)in 23%, and ins(3)(q26;q21q26) in 1 case (6%); additional anomalies were: -7/del(7q) in 82%, -5/del(5q) in 35 %, del(6q) and del(20q) in 12 % each. Complex karyotypes were found in 53%.

Genes involved and proteins

EVI1

Location
3q26

RPN1 (ribophorin 1)

Location
3q21

Result of the chromosomal anomaly

Hybrid gene

Description
RPN1enhancer juxtaposed to EVI1.

References

Block AW, Carroll AJ, Hagemeijer A, Michaux L, van Lom K, Olney HJ, Baer MR. Rare recurring balanced chromosome

abnormalities in therapy-related myelodysplastic syndromes and acute leukemia: report from an international workshop. Genes Chromosomes Cancer. 2002 Apr;33(4):401-12

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