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Leukaemia Section
Short Communication

t(11;14)(q11;q32)

Adriana Zamecnikova

Kuwait Cancer Control Center, Kuwait annaadria@yahoo.com

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Abstract

Review on t(11;14)(q11;q32), with data on clinics, and the genes involved.

Keywords
Immunoglobulin translocations, B-cell lymphoproliferative malignancies, multiple myeloma, gene overexpression

Clinics and pathology

Disease

B-cell lymphoid malignancies and multiple myeloma.

Etiology

B-cell lymphoid malignancies in 5: 3 chronic lymphocytic leukemia (CLL) (Schroder et al., 1981; Weisenburger et al., 1987; Bird et al., 1989), 1 plasma cell leukemia (PCL) (Ueshima et al., 1983), 1 mantle cell lymphoma (MCL) (Espinet et al., 1999) and 2 multiple myeloma (MM) patients (Sawyer et al., 1995; Gozzetti et al., 2011).

Epidemiology

2 males and 5 females aged 45 to 78 years, median 63 years.

Prognosis

Chromosome 14q32 translocations that are part of complex karyotypes are associated with an adverse prognosis in B-cell malignancies.

Cytogenetics

Note
The breakpoint on chromosome 11 is 11q13 in the most common t(11;14)(q13;32), therefore some of the translocations described as t(11;14)(q11;q32) in early reports may involve 11q13 breakpoint.

Additional anomalies

Found in association with highly complex karyotypes, thus it is unclear if t(11;14)(q11;q32) was a primary aberration in these patients or it appeared as a secondary change during karyotypic progression.

Genes involved and proteins

IGH (Immunoglobulin Heavy Locus)

Location
14q32.33

Note
IGH translocations relocate genes near active regulatory sequences of the partner gene, resulting in their overexpression.

Result of the chromosomal anomaly

Fusion protein

Oncogenesis
Translocations involving chromosome 14 at band q32, at the site of the immunoglobulin heavy chain (IGH) locus have been described in a spectrum of B-cell malignancies. In these translocations, various partner chromosomes have been described, including chromosome 11, of which the t(11;14)(q13;q32) that leads to the overexpression of the CCND1 gene is the most common. Chromosome translocations involving centromeric 11q breakpoints are less frequent and have been

described only in sporadic cases of B-cell lymphoid malignancies and multiple myeloma. Although the mechanism of neoplastic transformation remains unknown, deregulation of the translocated partner gene as a consequence of its transposition into the IGH locus may represent a mechanism of oncogene activation.

References

Bird ML, Ueshima Y, Rowley JD, Haren JM, Vardiman JW. Chromosome abnormalities in B cell chronic lymphocytic leukemia and their clinical correlations. Leukemia. 1989 Mar;3(3):182-91

Espinet B, Solé F, Woessner S, Bosch F, Florensa L, Campo E, Costa D, Lloveras E, Vilà RM, Besses C, Montserrat E, Sans-Sabrafen J. Translocation (11;14)(q13;q32) and preferential involvement of chromosomes 1, 2, 9, 13, and 17 in mantle cell lymphoma. Cancer Genet Cytogenet. 1999 May;111(1):92-8

Gozzetti A, Cerase A, Crupi R, Raspadori D, Defina M, Bocchia M, Lauria F. A central nervous system CD56 positive multiple myeloma patient with a t(11;14)(q11;q32): a case report. Leuk Res. 2011 Nov;35(11):e206-8

Sawyer JR, Waldron JA, Jagannath S, Barlogie B. Cytogenetic findings in 200 patients with multiple myeloma. Cancer Genet Cytogenet. 1995 Jul 1;82(1):41-9

Schröder J, Vuopio P, Autio K. Chromosome changes in human chronic lymphocytic leukemia. Cancer Genet Cytogenet. 1981 Aug;4(1):11-21

Ueshima Y, Fukuhara S, Nagai K, Takatsuki K, Uchino H. Cytogenetic studies and clinical aspects of patients with plasma cell leukemia and leukemic macroglobulinemia. Cancer Res. 1983 Feb;43(2):905-12

Weisenburger DD, Sanger WG, Armitage JO, Purtilo DT. Intermediate lymphocytic lymphoma: immunophenotypic and cytogenetic findings. Blood. 1987 Jun;69(6):1617-21

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