del(6q) in Multiple Myeloma

Christophe Brigaudeau

Laboratory of Hematology, University Hospital, 87000 Limoges, France

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Clinics and pathology

Disease
Multiple myeloma (MM) is a malignant plasma cell proliferation

Phenotype/cell stem origin
Mature differentiated B-cell, but also with CD56 expression, which is not found in normal plasma cell; CD38+, CD40+, CD138+.

Epidemiology
MM’s annual incidence is 30/10^6; del(6q) is observed in about 2 to 5% of MM cases (i.e.: 5-10% of cases with an abnormal karyotype).

Clinics
Bone pain; susceptibility to infections; renal failure; neurologic dysfunctions.

Pathology
MM staging:
- stage I: low tumour cell mass; normal Hb; low serum calcium; no bone lesion; low monoclonal Ig rate;
- stage II: fitting neither stage I nor stage II;
- stage III: high tumour cell mass; low Hb and/or high serum calcium and/or advanced lytic bone lesions and/or high monoclonal Ig rate.

Evolution
MM can evolve towards plasma cell leukemia.

Prognosis
Prognosis (highly variable) is according to the staging and other parameters, of which are now the karyotypic findings: two distinct cytogenetic pattern have been reported, according to the chromosome number: 1- a hyperdiploid pattern, and 2- a pattern of either pseudodiploidy, hypodiploid or near-tetraploidy karyotypes; patients with the latter pattern appear to have a worse prognosis than patients with a hyperdiploid karyotype (median survival of 1.5 yr vs 3 yrs; p<0.04). del(6q) abnormalities were more frequent in the second hypodiploid group.

Cytogenetics

Cytogenetics morphological
del(6q) are mainly so-called terminal deletions, with a variable breakpoint in q12, q15, q21, or q23; overall, the break occurs predominantly in 6q21.

Genes involved and proteins

Note
del(6q) in MM cases encompass the 6q21 band: loss of this band suggests that the critical gene(s) might be a recessive tumour suppressor gene sitting in 6q21, which remains to be identified

References


This article should be referenced as such: