TP53

*TP53*codes for the p53 protein also called « the genome guardian », owing to its role of tumor suppressor, especially by the control it exerts on DNA repair, cell cycle and apoptosis. Mutations of *TP53* have been observed in about 9% of myelodysplastic syndroms and 14% of acute myeloid leukemia (AML).[1,2] During myeloproliferative neoplasms (MPN), *TP53* mutations are rare in chronic phase (3.1%) and almost exclusively occur during blastic phases with a frequency of 25-27.3%.[3,4] *TP53* mutations are frequently associated with a loss of the other allele, by mutation, acquired uniparental disomy or a deletion secondary to a chromosome 17 rearrangement. In fact, the minor clone bearing the *TP53* mutation pre-exists during the chronic phase. When the wild-type *TP53* allele is lost, this clone can expand, usually leading to transformation in AML.[5] Amplifications of the chromosome 1q region carrying the *MDM4* gene (coding for a p53 inhibitor) sometimes occur during transformation of MPN to AML (in an eclusive manner of *TP53* mutations). Thus, up to 45% of blast-phase patients present a decreased activity of p53.[4]

TP53 mutations are also associated with shorter survival, probably due to their association with blast crises. They are rarely associated with other mutations identified in MPN and AML.[1,3,4]

References

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