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Prognostic implication of NRAS Gene mutations in Egyptian adult acute myeloid leukemia

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Background: The pathogenesis of acute myeloid leukemia (AML) involves the cooperation of mutations promoting proliferation/ survival and those impairing differentiation. point mutations of the N-RAS gene are the most frequent somatic mutations causing aberrant signal-transduction in acute myeloid leukemia (AML).

Objectives: To study the frequency and prognostic significance of NRAS gene mutations ($NRAS^{mut}$) in de novo adult AML.

Methods: Bone marrow specimens from 150 patients with de novo acute myeloid leukemia and controls were analyzed by genomic PCR-SSCP at codons 12, 13 (exon 1), and 61 (exon 2) for NRAS mutations.

Results: $NRAS^{mut}$ was found in 19/150 (12.7%) AML cases, represented more frequently in the FAB subtype M4eo (P = 0.028). and at codon 12, 13 (14of 19; 73.7%). Patients with $NRAS^{mut}$ had a significant lower peripheral, marrow blasts (P = 0.004, P=0.03) and non significant improved clinical outcome than patients without mutation. Complete remission rate was (63.2% vs 56.5%; p=0.46), resistant disease (31.5% vs 44.2%; p=0.51), 3 year overall survival (44% vs 42%; P = 0.85) and disease free survival (42.1% vs 38.9%, P = 0.74).

Conclusion: NRAS gene mutation frequency and spectrum differ between biologically distinct subtypes of AML but do not significantly influence prognosis and clinical outcome.