Expression of (TET1) Ten-Eleven Translocation 1 Gene in Acute myeloid Leukaemia

Background: The Ten-Eleven Translocation 1 gene (TET1) is a member of the TET methyl cytosine dioxygenase family of enzymes (TET1, TET2, and TET3). TET1 has a role in various physiological and pathological processes. It is an epigenetic regulator of the DNA and RNA demethylation processes. Therefore, it regulates gene expression at both the transcriptional and post-transcriptional levels.

Aim of the work:

We studied the expression level of the TET1 gene in acute myeloid leukaemia patients and its correlation with the clinical and pathological criteria of these patients.

Methods:

This study was done on 37 patients of newly diagnosed acute myeloid leukaemia, Bone marrow samples were analysed using Real-Time PCR 7500s, Twenty subjects, apparently healthy were included in the study as a control group matched by age and sex.

Results: There was a significant correlation between the expression levels of TET 1 gene in AML patients and their clinical and pathological criteria. It has been found that expression levels of TET1 gene in patients' samples were high in AML than controls,

In our study, we reported a significant TET1 gene up regulation in 62.2% of the studied AML patients. A significant high TET1 level was found in 66.7% of patients with AML, NOS; 66.7%, 83.3%, and 61.9 % of AML without maturation, AML with maturation, and AML with monocytic differentiation groups of patients, respectively .

Regarding AML with recurrent cytogenetic abnormalities in our study, 100% of patients with AML carrying t(8;21) showed TET1 down regulation with no difference in TET1 expression level among AML patients with t(15;17) .This study showed a significant relation between TET1 gene level and the percentage of blast cells in peripheral blood (P.B), bone marrow (B.M) the higher percent of blast cells was associated with the up regulated TET1 gene.

Conclusion: TET1 exerts an oncogenic role in AML and is up regulated in AML patients

a relation between TET1 expression level and blast percentage in P.B and BM in AML patients was found, the higher percent of blast cells was associated with the up regulated TET1 gene .