

Expression of enhancer of Zeste 2 polycomb repressive complex 2 subunit gene (EZH2) in acute myeloid leukemia Nahla A. M. Hamed¹ , Ashraf Elgandour¹ , Omar Gallab¹ , Reham Abdel Haleem² , Mohamed Raafat Rezk¹ Department of Internal Medicine¹ and Clinical Pathology ², Faculty of Medicine, Alexandria University, Egypt

Background

Enhancer of Zeste Homolog 2 (EZH2) is the catalytic subunit of the chromatin modifying enzyme polycomb group (PRC)2. As a complex these proteins selectively silence target genes through trimethylation of histone H3 at lysine 27. EZH2 is strongly oncogenic. It has been observed in various malignancies which makes an interesting therapeutic target. Whether it function as a tumor suppressor or oncogene is not settled in acute myeloid leukemia.

Objective

This study was done to determine the relative expression level of EZH2 gene in a cohort of Egyptian patients with adult newly diagnosed acute myeloid leukemia

Patient Case Report

The present study included 45 de novo acute myeloid leukemia (AML) and 40 healthy persons of matched age and sex as a control group. The following was done to all patients: complete blood count, bone marrow examination, cytochemical and immunophenotyping study and conventionl cytogenetics, hepatic and renal function tests. Detection of EZH 2 gene expression level by real time quantitative polymerase chain reaction (RQ-PCR) was done to all patients and controls.

The median age of our patients was 33 year. Males constitute 66.7% (30 patients) of our patients and females constitute 33.3% (15 patients). The majority of our patients (71.1%, 32 patients) were M5. Cytogenetic study revealed presence of normal cytogenetic in 28 (62.1%) patients. EZH2 was lower in AML patients as compared with controls (p-value<0.001). There was no difference in EZH2 level when considering age, sex, bone marrow blasts, cytogenetic study, type or site of infection. Low EZH2 was associated with higher mortality 31(68.9%) patients and resistance to chemotherapy 39 (86.6%) patients.

Conclusions:

From this study we concluded that low EZH2 is common in Egyptian acute myeloid leukemia patients. It functions as tumor suppressor gene rather than an oncogene. Its presence is associated with resistance to chemotherapy and high mortality rate.

References:

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