AML-419

Molecular Aberrations in Acute Myeloid Leukemia (AML) and Myelodysplastic Syndrome with Excess Blast II (MDS-EB II) in Kuwait

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Abstract: To study Genetic aberrations in acute myeloid leukemia/MDS-RAEB-II and response to standard of care in Kuwait.

Background: Acute myeloid leukemia (AML) is a heterogeneous disease with variable outcomes on standard treatment. Different mutational profiles have been described which correlate with various outcomes. Genetic abnormalities are not well-described in our region. Our aim is to describe the molecular aberrations observed in our patient population treated at Kuwait cancer control center (KCCC). We recently introduced DNA based Oncomine Myeloid Gene Panel (MGP), testing 55 genes.

Objective: To study the mutational landscape in AML/MDS-RAEB II and response to standard induction therapy at KCCC.

Materials & Methods: We collected clinical, cytogenetic and molecular data prospectively since we introduced the MGP test in mid 2020. We also reviewed medical records to collect baseline clinical data. We included patients aged 16 yrs and above with AML& MDS-EB II treated at KCCC.

Fig 1.

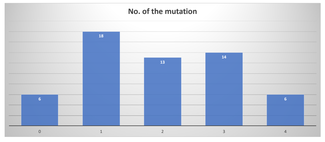
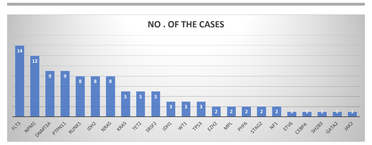


Fig 2.



Summary: Fifty-seven patients were included in the study from August 2020 to April 2022, with median age of 52 years (range 19-81Years). Twenty-four (42%) were Kuwaiti and 33(58%) were non-nationals. Thirty-four (60%) were male and 23(40%) female patients. Fifty-three (93%) patients were AML, 3 (5%) MDS-EB II and 1 patient with chronic myeloid leukemia in myeloid blast crisis (CML-MBC). Fifty-one (90%) patients had one or more mutations while 6 (10%) were without any aberrations.

Most of the patients had more than one aberration. The mutations detected in our cohort of patients were FLT3 (ITD & D835) 14(27.5%), NPM-1, 12(23.5%), DNMT3A 9(17.6%), PTPN11, 9(17.6%), RUNX1, 8(15.6%), IDH2, 8(15.6%), NRAS 8 (15.5%), KRAS 5(10%), TET2 5(10%) and TP53, 3((6%). Our observations co-relate with the international data however Our patients were noted to have higher incidence of PTPN 11.

Our standard of care induction included DA 10 in majority of patients and Azacitidine+venetaclox in selected population. In our cohort post DA 10 induction CR was 78% (overall), 71%(FLT3), 87%(NPM1), 75% t (8;21). Three patients received Azacytidine +venetoclax and all acheived CR (100%).

Discussion: The pattern of mutational landscape in our cohort of patients is reported first time from the region. Around 90% of patients had more than one mutation. FLT3 and NPM1 were the commonest aberrations. Patients with t (8;21) AML had other co mutations and possible reason of lower CR rates in our region compared to international published data. Azacytidine + Venetoclax induction lead to 100% CR.

Keywords
AML, MDS EBII, molecular aberrations