A Retrospective Chart Review Analysis of Therapy related AML. A Single Center Experience.

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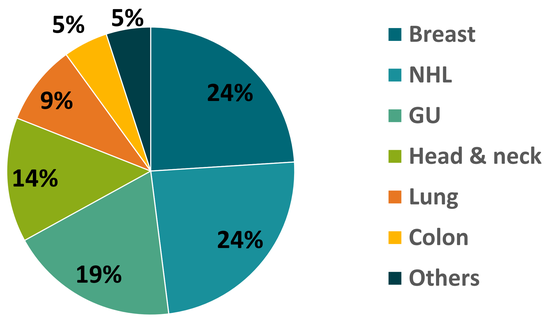
Abstract

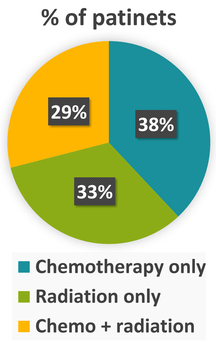
Background: Therapy-related acute myeloid leukemia (t-AML) is a group of hematological neoplasms that occurs in patients who were exposed to cytotoxic chemotherapy and or radiation. It is usually associated complex cytogenetics and poor prognosis. Methods: We conducted a retrospective chart review of patients who developed t-AML. We first reviewed the charts of adult AML patients from 2010 till 2019. Among this cohort, we identified those who previously received chemotherapy and or radiation for a different pathology/disease. Results: We identified a total of 21 patients with t-AML. Five had previous breast Cancer, 5 non-Hodgkin's lymphoma, 4 GU cancers, 3 head and neck cancers, 2 lung cancers, 1 colon cancer, and one other. Seven patients received chemotherapy alone, 7 received single modality radiation, 6 received both chemo-radiation. Five patients received cyclophosphamide containing regimen and 5 received platinum based regimen. The average age at diagnosis was 72 years (range 52-87months). The time from initial treatment to the development of t-AML ranged from 9 months to 396 months. Interestingly, for patients who received chemo-radiation, the median time was 68 months (range 14 to 147 months). The most common cytogenetic abnormalities were 7q(-) (33%), 5q(-) (19 %), trisomy 8(19 %) and some had multiple abnormalities (>5) (23%). These patients had very poor prognosis with overall survival of 4.5 months. Conclusion: In our study, we identified 21 t-AML patients. Most had cytogenetic abnormalities affecting chromosomes 5, 7 and 8 or complex karyotypes. The average time to AML diagnosis was 68 months. Patients had a poor prognosis and most succumbed fast to their disease.

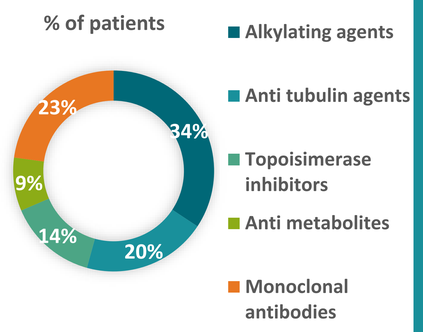
Introduction



- The above pie chart illustrates the distribution primary cancer for which the patients received treatment and subsequently developed t-AML
- We had a total of 181 patients who were diagnosed with AML from 2010 to 2019 out of which 21 had t- AML equally distributed between males and females.

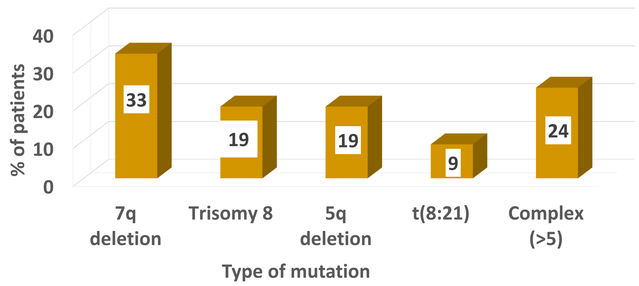
Type of Treatment received





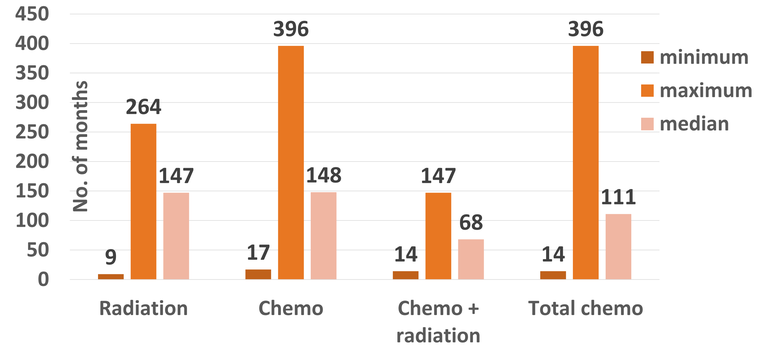
- Figure A illustrates the % of patients who received chemotherapy only, radiation only and combination of chemo and radiation.
- Overall 66% of patients received chemotherapy and 23% received radiation treatment
- Figure B illustrates the type of chemo received by patients who developed t-AML. Note that majority of patients received multiple lines of chemotherapy.
- Majority received Alkylating agents

Cytogenetics



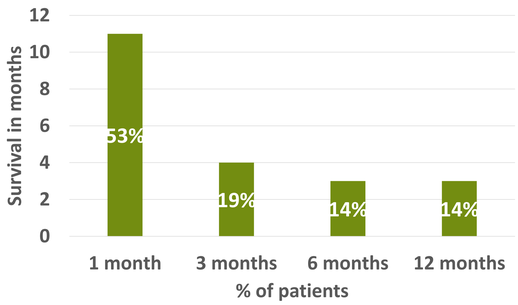
- The above graph illustrates the percentage of patients with cytogenetic abnormalities.
- 7q deletion is the most common cytogenetic abnormality identified in our patient population
- Out of the 21 who developed t-AML, 15 had complex cytogenetics.
- ~ 20% of patients had multiple (>5) cytogenetic abnormalities.

Time to develop tAML



- Overall the median time to development of t-AML Ranged from 9 to 396 months with median time to develop t-AML of 123.7 months.
- The median time to develop t-AML in patients who received chemotherapy and radiation is 68 months.
- We had two patients developed t- AML after 360 and 396 months, which is why the median is so long in the chemo only group. Excluding those 2 patients the median time to develop t-AML was 56 months

Survival



- The graph illustrates the survival In our study population
- These patients have very poor prognosis and > 50% succumbed to the disease with in 1 month of diagnosis.

Conclusions

In our study, we identified 21 t-AML patients. Most had cytogenetic abnormalities affecting chromosomes 5, 7 and 8 or complex karyotypes. Patients had a very poor prognosis and most succumbed fast to their disease.