Efficacy and toxicity of FLAG-IDA-Venetoclax compared with other induction regimens in newly diagnosed and relapsed AML: a real-world single-center study

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INTRODUCTION

Venetoclax-based intensified induction regimens have demonstrated activity in acute myeloid leukemia (AML), but real-world comparative data across induction strategies are limited. We evaluated efficacy and toxicity outcomes among patients receiving 7+3, FLAG-IDA–venetoclax, or other induction regimens in a single-center AML cohort.

METHOD

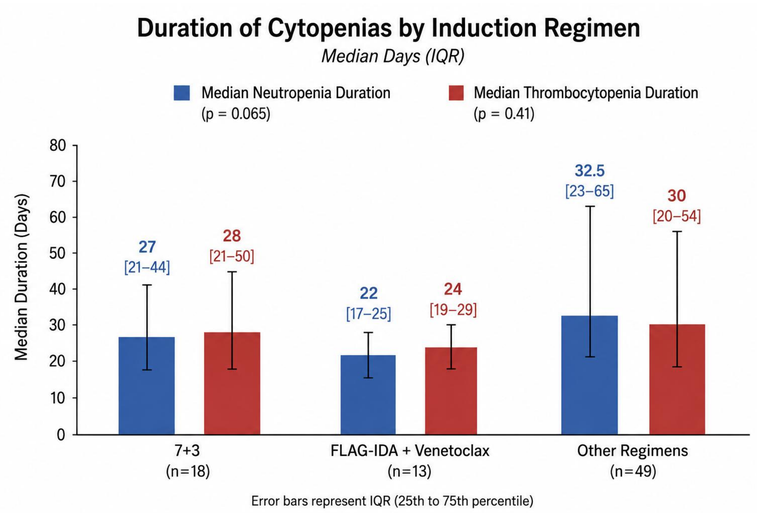
We conducted a retrospective analysis of 80 adult patients with newly diagnosed or relapsed AML between 2018-2025 receiving induction chemotherapy at a single community institution. Outcomes included response category, minimal residual disease (MRD) status, duration of neutropenia and thrombocytopenia, febrile neutropenia, and bleeding complications. Continuous variables were summarized as median (IQR) and compared across three induction groups using the Kruskal–Wallis test; categorical variables were analyzed using χ^2 or Fisher's exact tests. All tests were two-sided with $p<0.05$ considered statistically significant.

CONCLUSIONS

In this real-world study, three-group comparison of AML induction strategies, response rates, MRD negativity, and key clinical outcomes were similar across 7+3, FLAG-IDA–venetoclax, and other regimens. FLAG-IDA–venetoclax showed potential comparable efficacy with numerically shorter durations of cytopenias, supporting its feasibility as an intensive induction option in appropriately selected patients. These findings add real-world context to venetoclax-based intensified induction strategies and may inform regimen selection in routine clinical practice.

RESULTS

Eighty patients were included: 18 (22.5%) received 7+3, 13 (16.3%) FLAG-IDA–venetoclax, and 49 (61.2%) other regimens. AML risk distribution differed across induction groups (p=0.0095), with a higher proportion of adverse-risk disease in the other-regimen group. Most patients were newly diagnosed (85%), with no significant difference among groups. Complete remission (CR) rates were 72.2% (13/18) with 7+3, 84.6% (11/13) with FLAG-IDA + venetoclax and 57.1% (28/49) with other regimens without reaching statistical significance. MRD negativity rates were similar among groups (p=0.73). G-CSF use differed across groups and was more frequent in non–7+3 regimens (p=0.005). Consolidation therapy varied significantly by induction regimen (p<0.001). Median (IQR) duration of neutropenia was shortest in the FLAG-IDA–venetoclax group (22 [17–25] days) compared with 7+3 (27 [21–44]) and other regimens (32.5 [23–65]) (p=0.065). Median duration of thrombocytopenia was also shortest in the FLAG-IDA–venetoclax (24 [19–29]) followed by 7+3 (28 [21–50]) and other-regimen group (30 [20–54]) (p=0.41). Rates of febrile neutropenia, bleeding complications, relapse, allogeneic transplantation, and survival did not differ significantly by induction regimen.



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