Prognostic Impact of FLT3 Mutation with Core Binding Factor Acute Myeloid Leukemia

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Background/Aims: The prognostic impact of FMS-like tyrosine kinase 3(FLT3) mutations has not been clearly identified in patients with Core binding factor acute myeloid leukemia(CBF-AML). In this study, we aimed to analyze the survival outcomes of CBF-AML patients harboring FLT3 mutations.

Methods: We conducted a retrospective review of medical records for patients with CBF-AML at Kyungpook National University Hospital and Chungnam National University Hospital between 2003 and 2021. The study cohort comprised patients who were 65 years old or younger and underwent chemotherapy(CTx), consisting of an anthracycline/cytarabine-based regimen. Subsequently, patients who achieved complete remission(CR) received high-dose cytarabine consolidation CTx or underwent allogeneic stem cell transplantation(alloSCT).

Results: A total of 134 patients with CBF-AML were included. The median age at diagnosis was 45 years. FLT3 mutation status was evaluated in 132 patients, and FLT3 mutations were present in 10 patients(7.5%). Out of the 134 patients, 131 were treated with CTx. Following the induction CTx, 126 patients achieved CR. Among these, 91 patients were subjected to consolidation with CTx, whereas 39 patients underwent alloSCT. The 5-year cumulative incidence of relapse(CIR) was 35.1%, and the 5-year overall survival(OS) was 56.7%. However, no significant differences in CIR and OS were observed based on the presence of FLT3 mutation. Regarding subsequent treatments after achieving CR, survival outcomes were comparable between consolidation CTx and alloSCT in patients without FLT3 mutations. On the other hand, patients with FLT3 mutations demonstrated better clinical results when receiving consolidation CTx in CR, in terms of both CIR and OS. However, the sample size of FLT3 mutation cases was small, thus the interpretation of results should be cautiously approached.

Conclusions: In patients with CBF-AML who are eligible for CTx, clinical outcomes may not differ significantly based on the presence of FLT3 mutation. However, the ideal treatment approach to enhance survival in these patients remains uncertain. Therefore, further investigations using larger patient cohorts are warranted.