frequency and factors predisposing to pulmonary infections in patients with chronic lymphocytic leukemia treated with targeted agents

Maher Salamoon MD, Al Bairouni university cancer center, Daffodil 88 comprehensive cancer center, Damascus university, Damascus, Syria

INTRODUCTION

CLL patients complain from defected T-cell mediated immunity as well as a depleted B-cell due to B-cell targeted agents such as Rituximab, Obinutuzumab and Ibrutinib. This de novo immunodeficiency predisposes those patients to several bacterial and opportunistic pathogens in the light of accompanying decrease in immunoglobulins

AIM

It is a prospective observational study including newly diagnosed patients with CLL treated with anti-CD20 (first and second generation) as well as Ibrutinib. The study documents the frequency of pulmonary infection with a 2-year follow-up correlating infection with the basal genetic status at presentation.

METHOD

We have included 40 newly diagnosed patients with CLL (ages between 62-85 years), 10 of which showed IGHV mutant vs 30 non-mutants. TP53 mutation documented in 15 patients (9 with FAV more than 10% and 6 with less than 10 %) while COBBLL1 was mutant in 12 patients. 10 patients received Rituximab upfront, 10 received Obinutuzumab while the remaining 20 received Ibrutinib. 24 patients had a history of COPD, 16 with COVID-19. IGs level ranged between 580-1120 mg/dl at presentation. The last follow-up of all patients was in June.15.2025.

CONCLUSIONS

The genetic identity of newly diagnosed CLL patients might play a role in predicting infection in high-risk group with a history of lung diseases. This sample should contain a bigger cohort with several risk groups to obtain more information about the future of our patients

RESULTS

Pulmonary infection documented in 16 patients started between 3-9 months after starting treatment with main pathogens: streptococcus pneumoniae (8 patients), streptococcus jirovecii (2 patients) and 6 patients with staphylococcus aureus. CMV reactivation was documented in 3 patients receiving Ibrutinib and 2 patients receiving Obinutuzumab. There was a between high-burden TP53 and pulmonary infection (p value .04). COBBLL1 has no effect on developing infection (p value .08). non mutated IGHV correlated with increased risk of infection (p value .05). low levels of IGs at presentation were not correlated with increased risk of infection (p value .06). in multivariate analysis, factors correlated with higher risk of infection were high burden TP53 p value .04, COPD p value .05 and patients with poor adherence to treatment p value .05. in univariate analysis the main factor associated with infection was TP53 with FAV more than 10% with a p value of .02.

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CONTACT INFORMATION

maher salamoon MD

maher.salamoon@gmail.com

+963933771086

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