
Real world evidence of impact of atrial fibrillation (AF) on clinical and economic outcomes in patients with chronic lymphocytic leukemia (CLL)

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Background: While the incidence of AF in CLL has been increasing, the implications of AF in real-world CLL patients remain understudied. This study aimed to assess the impact of AF on clinical and economic outcomes in CLL patients.

Methods: This retrospective observational study used the US IBM MarketScan[®] commercial claims/Medicare supplement database (2017-2020) to identify newly diagnosed CLL patients (≥18 years) and incidence of AF after index date, defined as the first CLL diagnosis date. Patients were followed for ≥3-months pre-index, and from index to last follow-up or death. In addition to patient characteristics, clinical outcomes (incidence of heart failure [HF], bleeding and stroke) and economic outcomes (costs and healthcare resource utilization [HRU]) were compared between CLL patients with AF (CLL+AF) and CLL patients without AF (CLL-AF). HRU was evaluated by inpatient, outpatient, ER, and pharmacy visits. Multivariable regression analyses were conducted to examine the association between AF and clinical outcomes.

Results: Among a total of 16,800 newly diagnosed CLL patients included in the study, 20% developed AF. CLL+AF were significantly older than CLL-AF (median: 77 vs 62 years; $P < .001$). Compared to CLL-AF, CLL+AF also had significantly more comorbidities at baseline, as shown by higher Charlson comorbidity index (CCI) (median: 1.0 vs 3.0; $P < .001$) and more patients with previous AF history (0.3% vs 8.4%; $P < .001$). Further assessing clinical outcomes in CLL+AF vs CLL-AF, significantly higher incidence of HF (26.3% vs 3.0%; $P < .001$), bleeding (12.2% vs 4.8%; $P < .001$) and stroke (6.6% vs 1.2%; $P < .001$) were observed. For HRU, CLL+AF were reported to have significantly higher rates of ER visits (29.4% vs 12.9%; $P < .001$) and hospitalizations (42.2% vs 14.5%; $P < .001$) than CLL-AF. In CLL+AF, the average total AF-related costs were \$13,520.21 within 30 days after AF diagnosis, and \$22,304.82 within 60 days after AF diagnosis. Controlling for demographics and comorbidities, multivariable regressions reported statistically significant associations between AF and HF, as well as AF and stroke (Table).

Conclusions: This real-world study reported significantly higher incidence of HF, bleeding and stroke incurred by CLL patients who developed AF compared with those who did not. The presence of HF, bleeding and stroke further increased HRU

and costs. These findings highlight the importance of better disease management and treatment selection to prevent AF in CLL patients.

	HF	Bleeding	Stroke
	Odds Ratio (95% Confidence Interval)		
AF	3.53 (3.04, 4.09)	1.15 (0.94, 1.40)	2.02 (1
Age (65+ vs < 65)	3.61 (3.10, 4.19)	1.55 (1.35, 1.77)	2.46 (1
Male (vs female)	0.99 (0.87, 1.13)	0.94 (0.83, 1.07)	0.86 (0
CCI	1.63 (1.57, 1.68)	1.28 (1.23, 1.33)	1.42 (1