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Blood 142 (2023) 5172–5173

The 65th ASH Annual Meeting Abstracts

POSTER ABSTRACTS

906.OUTCOMES RESEARCH-MYELOID MALIGNANCIES

Lower Incidence of Leukemia in Sodium Glucose Cotransporter-2 Inhibitor-Treated Patients with Type 2 Diabetes Mellitus: Result from Large Real-World Cohorts

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Objective: Leukemia is the among the top ten most common cancer in the United States of America, with incidence of 14.0 per 100,000 people. While the incidence of non-Hodgkin lymphoma has significantly decreased, the incidence of leukemia has been stable during 2014-2018 [1]. In the meantime, sodium-glucose cotransporter-2 inhibitors (SGLT-2i), a comparatively new class of anti-diabetic medication, has gained significant popularity among clinician due to its cardioprotective and reno-protective properties. Several observational studies and meta-analyses explored the relationship between SGLT-2i and solid tumor, including bladder cancer and breast cancer [2, 3]. Nevertheless, contemporary data for SGLT-2i and leukemia are limited. This large cohort study was aimed to investigate the association between SGLT-2i and the risk of leukemia.
Methods: This was a retrospective cohort study including patients with T2DM from 92 hospitals across the United States between 2015 and 2023. Inclusion criteria were patients with T2DM aged 18 years or older who newly initiated treatment with SGLT-2i or DPP-4i. Patients with a history of type 1 diabetes or malignancies were excluded. Propensity score matching was applied to each group to account for confounding factors, including demographic characteristics, comorbidities, laboratory data, and medication history. The primary outcome of interest was the occurrence of incident leukemia, including lymphoid leukemia, myeloid leukemia and monocytic leukemia. Kaplan-Meier analysis and log-rank tests were used to compare the outcomes across the cohorts, while hazard ratios (HRs) and corresponding 95% confidence intervals (CIs) were calculated using the Cox proportional hazard regression model.
Results: A total of 718,276 SGLT-2i initiators were matched to 1,159,112 DPP4i initiators diagnosed with T2DM. Among these, 3,429 incidents of leukemia were identified, with 1,148 occurring in the SGLT2i groups and 2,281 in the DPP-4i group after matching.The baseline characteristics, including ethnicity, comorbidities and medication history, were well-balanced between the two cohorts. SGLT-2i initiators demonstrated a significantly reduced risk of new-onset leukemia compared to those using DPP-4i, including myeloid leukemia (HR, 0.676; 95% CI, 0.589 to 0.776, $p < 0.001$) and lymphoid leukemia (HR, 0.846; 95% CI, 0.753-0.950, $p = 0.005$). There was no significant difference in the occurrence of monocytic leukemia (aHR 0.836; 95% CI, 0.556 to 1.257, $p = 0.388$).
Conclusion: This population-based propensity-score matched cohort study showed that SGLT-2i is associated with lower in the risk of developing leukemia when compared to those treated with DPP-4i. These findings highlight the potential therapeutic value of SGLT-2i in the prevention of hematological malignancies in patients with T2DM. Further clinical trials are necessary to explore and validate the potential applications.

Reference

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Disclosures No relevant conflicts of interest to declare.

Table 1. Comparison of outcomes in patients with type 2 diabetes using SGLT2i, compared to DPP4i users after propensity score matching

Outcomes	SGLT2 inhibitor group		DPP4 inhibitor group		Total Events	Risk Difference	95% CI	Risk Ratio	95% CI	Odds Ratio	95% CI
	Included	Events	Included	Events							
Lymphoid leukemia	699,942	474	699,942	837	1311	-0.001	(-0.001, -0.000)	0.566	(0.506, 0.634)	0.566	(0.506, 0.634)
Myeloid leukemia	699,947	311	699,942	663	974	-0.001	(-0.001, -0.000)	0.469	(0.410, 0.537)	0.469	(0.410, 0.536)
Monocytic leukemia	699,949	37	699,949	73	110	-0.000	(-0.000, -0.000)	0.507	(0.341, 0.753)	0.507	(0.341, 0.753)
Other leukemias of specified cell type	699,949	93	699,947	268	361	-0.000	(-0.000, -0.000)	0.347	(0.274, 0.439)	0.347	(0.274, 0.439)
Leukemia of unspecified cell type	699,945	233	699,944	440	673	-0.000	(-0.000, -0.000)	0.530	(0.452, 0.621)	0.529	(0.452, 0.621)

Table 2. The risk of outcomes in patients with type 2 diabetes using SGLT2i, compared to DPP4i users

Outcomes	Before propensity score matching			After propensity score matching		
	Hazard ratio	95% CI	P-value (log-rank)	Hazard ratio	95% CI	P-value (log-rank)
Lymphoid leukemia	0.657	(0.593, 0.728)	0.000	0.846	(0.753, 0.950)	0.005
Myeloid leukemia	0.593	(0.523, 0.672)	0.000	0.676	(0.589, 0.776)	0.000
Monocytic leukemia	0.656	(0.454, 0.948)	0.024	0.836	(0.556, 1.257)	0.388
Other leukemias of specified cell type	0.421	(0.337, 0.525)	0.000	0.495	(0.389, 0.629)	0.000
Leukemia of unspecified cell type	0.669	(0.577, 0.775)	0.000	0.820	(0.696, 0.966)	0.018

Figure 1

https://doi.org/10.1182/blood-2023-190268