Risk of new-onset hypertension in newly diagnosed chronic lymphocytic leukemia (CLL) patients (pts) treated with Bruton tyrosine kinase inhibitors (BTKis): a real-world data study using the Symphony Health Solutions database

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Background: BTKis provide an important therapeutic option for pts diagnosed with CLL. Concerns have arisen about a potential association with the risk of cardiovascular events with BTKi. Using the Symphony Health Solutions database, this study describes the risk of new-onset hypertension in CLL pts treated with and without BTKis.

Methods: Newly diagnosed CLL pts who started ibrutinib or acalabrutinib and those not treated with an approved BTKi between 2019 and 2022 were included in the analysis. The prevalence of hypertension prior to and risk of new-onset hypertension after treatment initiation were defined by use of antihypertensive medication. Pt demographics and comorbidities were described. Multivariate regression and inverse probability treatment weight based on propensity score were used to account for bias due to differences in pt characteristics between groups.

Results: In CLL pts treated with (n=7,114) and without BTKis (n=34,571), demographics and clinical characteristics included age at the index date (mean: 70.2 yrs, BTKi; 69.0 yrs, without BTKi), sex (male: 59.8%, BTKi; 55.7%, without BTKi), and Charlson comorbidity scores (mean: 3.3, BTKi; 3.1, without BTKi). At baseline, the prevalence of hypertension defined by the use of antihypertensive medication was 67.8% with BTKi and 67.6% without BTKi. Among pts without any antihypertensive medication use at baseline, the rates of new-onset hypertension within 1 yr after treatment initiation were greater in pts with BTKis than without BTKis (**Table**).

Conclusions: In this real-world analysis, CLL pts treated with BTKis had a higher burden of comorbidities, and use of antihypertensive medication was common. The risk of new-onset hypertension was higher in pts initiated on BTKis than those on non-BTKi treatments. These data suggest that development of hypertension is an important consideration in the long-term management of CLL pts undergoing BTKi treatment.

In Pts Without Prior Medical Encounter or Medication Use for Hypertension	BTKi (n=2,172)	Non-BTKi (n=10,626)	Unadjusted Hazard Ratio (95% CI)
Hypertension defined by any HTN Rx use New onset of hypertension, n (%) Event rate of hypertension (per 100 pts-mos) (95% CI)	375 (17.2) 1.60 (1.4-1.8)	1,322 (12.4) 1.12 (1.06-1.18)	1.45 (1.30-1.63)
Absolute risk difference	**0.048 or 4.8%**	Reference	
Number needed to treat	**21**		
Post hoc power calculation			>80%
Multivariate regression models, adjusted hazard ratio (95% CI)			
Model 1: Age and sex			1.40 (1.25-1.57)
Model 2: Age and sex, Charlson comorbidity score grouping (0, 1, 2, 3, 4+), index yr			1.37 (1.22-1.54)
Model 3: Age and sex, individual Charlson comorbidity category, year of treatment initiation or diagnosis			1.39 (1.24-1.56)
Inverse probability treatment weight based on propensity score, hazard ratio (95% CI)			1.44 (1.29-1.61)