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BTK inhibitor-related cardiotoxicity: The quest for predictive biomarkers and improved risk stratification

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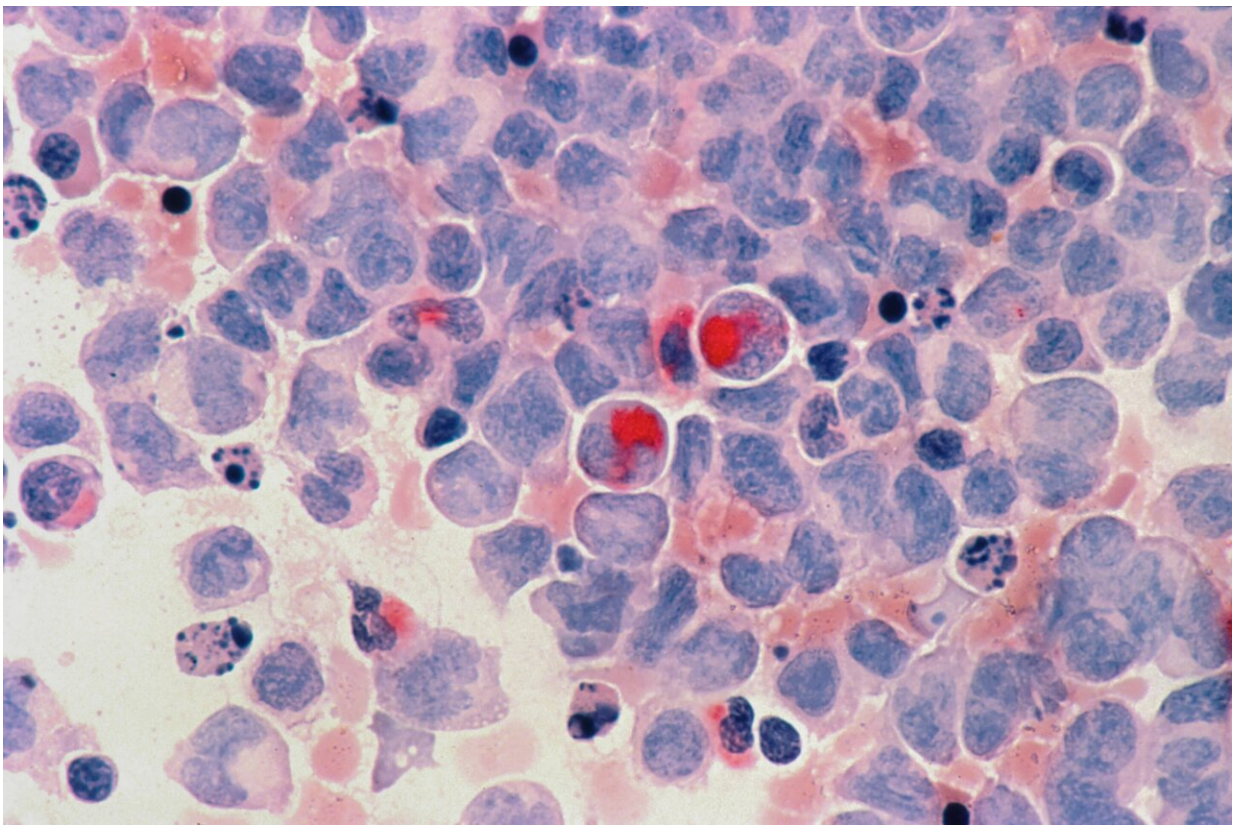

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A new research perspective titled "Bruton's tyrosine kinase inhibitor-related cardiotoxicity: The quest for predictive biomarkers and improved

risk stratification" has been published in *Oncotarget*.

In this new perspective, researchers Jai N. Patel, Jai Singh, and Nilanjan Ghosh from Atrium Health discuss Ibrutinib—the first Bruton's tyrosine kinase (BTK) inhibitor approved for the treatment of patients with chronic lymphocytic leukemia (CLL).

"While producing durable responses and prolonging survival, roughly 20–25% of patients experience dose-limiting side effects, mostly consisting of cardiovascular toxicities like severe hypertension and atrial fibrillation," the researchers write.

While clinical predictors of BTK inhibitor-related cardiotoxicity have been proposed and may aid in risk stratification, there is no routine risk model used in clinical practice today to identify patients at highest risk. A recent study investigating genetic predictors of ibrutinib-related cardiotoxicity found that single nucleotide polymorphisms in KCNQ1 and GATA4 were significantly associated with cardiotoxic events. If replicated in larger studies, these biomarkers may improve risk stratification in combination with clinical factors.

"A clinicogenomic risk model may aid in identifying patients at highest risk of developing BTK inhibitor-related cardiotoxicity in which further risk mitigation strategies may be explored," the researchers add.

More information: Jai N. Patel et al, Bruton's tyrosine kinase inhibitor-related cardiotoxicity: The quest for predictive biomarkers and improved risk stratification, *Oncotarget* (2024). DOI: 10.18632/oncotarget.28589

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