PIRTOBRUTINIB'S CARDIAC ADVERSE REACTIONS: AN EARLY PHARMACOVIGILANCE STUDY

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INTRODUCTION

- Pirtobrutinib is a novel non-covalent BTK inhibitor approved for relapsed or refractory B-cell malignancies.
- First-generation BTK inhibitors, particularly ibrutinib, are associated with cardiovascular toxicities, including atrial fibrillation and heart failure.
- However, the real-world cardiac safety of pirtobrutinib remains unclear.

AIM

- Evaluation of the cardiac safety profile of pirtobrutinib
- Comparison of heart failure and atrial fibrillation reporting signals between pirtobrutinib and ibrutinib
- Identification of potential early cardiovascular safety signals associated with pirtobrutinib

METHODS

- Study design: pharmacovigilance analysis
- Data source: FDA Adverse Event Reporting System (FAERS)
- Exposure groups: Pirtobrutinib and Ibrutinib
- Cardiac outcomes: Heart failure and atrial fibrillation
- Data cleaning: Reports limited to study-drug exposure at the time of reporting
- Statistical analysis: Reporting odds ratios, 95% confidence intervals, chi-square statistics, and p-values

CONCLUSIONS

- Pirtobrutinib demonstrated a significantly lower reporting odds ratio for atrial fibrillation, suggesting a potentially more favorable arrhythmogenic profile.
- Heart failure reporting odds was numerically higher with pirtobrutinib, but not statistically significant.
- Close cardiac monitoring is recommended until larger studies confirm the cardiovascular safety of pirtobrutinib.

RESULTS

• 530 adverse-event reports were linked to pirtobrutinib and 64,172 to ibrutinib.

• Pirtobrutinib reports included 13 heart failure events and 7 atrial fibrillation events.

• Ibrutinib reports included 923 heart failure events and 2,527 atrial fibrillation events.

• Heart failure: Pirtobrutinib showed numerically higher reporting odds versus ibrutinib (ROR 1.72; 95% CI 0.99–3.00; $\chi^2 = 3.79$; p = 0.051)

• Atrial fibrillation: Pirtobrutinib showed a statistically significantly lower reporting odds (ROR 0.33; 95% CI 0.15–0.69; $\chi^2 = 9.57$; p = 0.002).

	Pirtobrutinib	Ibrutinib
Total reported	530	64172
Total Cardiac	40	6553
Heart Failure	13	923
Atrial Fibrillation	7	2527

Pirtobrutinib vs Ibrutinib				
	ROR	CI	Chi-Square	P-value
Atrial Fibrillation	0.33	CI 0.15–0.69	$\chi^2 = 9.57$	p = 0.002
Heart Failure	1.72	CI 0.99–3.00	$\chi^2 = 3.79$	P = 0.051

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