

# Ibrutinib increases the risk of hypertension and atrial fibrillation: Systematic review and meta-analysis

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## Authors

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## Abstract

### Introduction:

Ibrutinib is an oral covalent inhibitor of Bruton's tyrosine kinase approved for the treatment of patients with chronic lymphocytic leukemia (CLL), mantle cell lymphoma and Waldenström's macroglobulinemia. Ibrutinib has an increased risk of atrial fibrillation but the mechanism is unknown, and hypertension may play a role in the pathogenesis of this adverse drug reaction.

### Methods:

We aimed to review the risk of hypertension and atrial fibrillation as adverse events associated with ibrutinib through a systematic review with meta-analysis of randomized controlled trials (RCTs) retrieved in December 2018 on MEDLINE, EMBASE, CENTRAL and Clinical-Trials.gov. The data were pooled using random-effects meta-analyses using the risk ratio (RR) with the 95% confidence interval (95%CI). The confidence on the pooled estimates was ascertained through the grading of recommendations assessment, development, and evaluation (GRADE) approach.

### Results:

There were 8 eligible RCTs (2580 patients), all reporting safety data of interest. Ibrutinib was associated with a significant increase in the risk of hypertension with a RR of 2.82 (95% CI 1.52–5.23) with moderate quality evidence. Ibrutinib increased significantly the risk of atrial fibrillation with a RR of 4.69 (95%CI 2.17–7.64) with high quality evidence.

### Conclusions

Ibrutinib was associated with significantly increased risks of both hypertension and atrial fibrillation.