

Proton Pump Inhibitors (PPIs) are inhibitors or risk factor for Atrial Fibrillation?

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Atrial Fibrillation is the most common arrhythmia seen in clinical practice. It has been associated with several risk factors including increasing age, hypertension, and presence of other heart diseases. We have read the article "Atrial fibrillation in patients with gastroesophageal reflux disease: A comprehensive review" with great interest, and the authors have concluded that atrial fibrillation is more prevalent in patients with Gastroesophageal reflux disease (GERD).¹ They also mentioned that use of proton pump inhibitors (PPIs) help prevent atrial fibrillation. Similar conclusions were made by some other studies revealing the role of proton pump inhibitors as inhibitors of atrial fibrillation and decreasing symptoms in patient with atrial fibrillation.²

Many studies also revealed PPIs as a causative factor for atrial fibrillation. There are several mechanisms of pro-arrhythmic effects of PPIs described in a literature review. PPIs are associated with several electrolyte abnormalities including hypomagnesemia through reduced intestinal absorption. A meta-analysis including 109,798 patients revealed patients who are taking PPIs are at higher risk of hypomagnesemia, which has been associated with various cardiovascular arrhythmias including widening QRS complexes, frequent atrial and ventricular premature systoles and sustained atrial fibrillation.³ A study done on patients with focal atrial tachycardia (AT) and right ventricular outflow tract ventricular tachycardia (RVOT VT) revealed increased odds of focal arrhythmias and RVOT VT associated with use of PPIs.⁴

Proton pump inhibitors inhibit H⁺/K⁺ ATPase in the gastrointestinal tract. Studies reveal expression of H⁺/K⁺ ATPase in the myocardium and PPIs may have their pro-

arrhythmic effects by altering calcium concentration intracellularly.⁵ Hence the current evidence is controversial whether the use of PPIs is a risk factor^{1,2} or an inhibitor of atrial fibrillation.^{4,5} A large randomized controlled trial is needed to clarify this association as current evidence is restricted to meta-analysis and retrospective studies.

Several studies have shown long-term side effects with PPI use, including risk of clostridium difficile colitis and dementia; although the evidence is still controversial, the overuse of proton pump inhibitor has been proven by multiple studies. Hence our approach for clinical practice with this conflicting evidence should be to evaluate for the indication of continuing PPIs in patients, and discontinuing them if no appropriate indication is found to prevent serious side effects with long-term use, if any.

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