

Migraine and Atrial Fibrillation: A Systematic Review and Meta-analysis

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Abstract

Introduction: Patients with migraines, particularly those with auras, may present with stroke. Atrial fibrillation is a known risk factor for stroke. With common pathophysiological factors between migraines and atrial fibrillation, we aimed to clarify the association between migraine and atrial fibrillation in this systematic review and meta-analysis. **Materials and Methods:** A literature search was conducted in EMBASE, PubMed, Scopus and Cochrane electronic bibliographic databases from inception to 14th June 2021 with the following inclusion criteria: (1) cohort or cross-sectional studies, (2) patients [?] 18-years-old, (3) studies examining association between atrial fibrillation and migraines. Exclusion criteria were case-control studies, studies including patients with prior diagnosis of atrial fibrillation or non-migrainous headache. The Newcastle Ottawa Scale was used to assess the quality of studies. **Results:** 6 studies were included, demonstrating a 1.61% (95% CI 0.51, 3.29) pooled prevalence of atrial fibrillation in migraine with aura and 1.32% (95% CI 0.17, 3.41) in migraine without aura. The total prevalence of atrial fibrillation in migraine was 1.39% (95% CI 0.24, 3.46) overall. **Conclusion:** Overall, there was a higher prevalence of atrial fibrillation in migraine with aura compared to migraine without aura. Prevalence of atrial fibrillation in migraine patients was low.

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Migraine and AF (Journal of Cardiovascular Electrophysiology).docx available at <https://authorea.com/users/467855/articles/561775-migraine-and-atrial-fibrillation-a-systematic-review-and-meta-analysis>

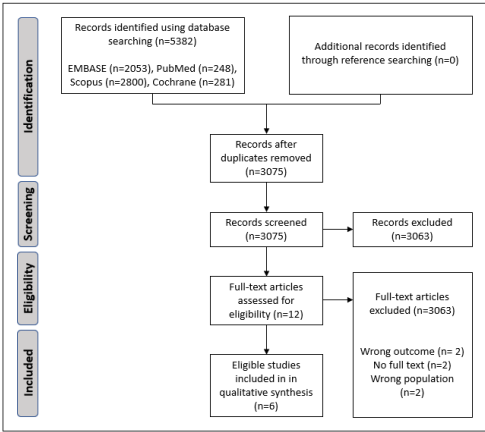


Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram of the process of identifying, screening, checking for eligibility and inclusion of studies

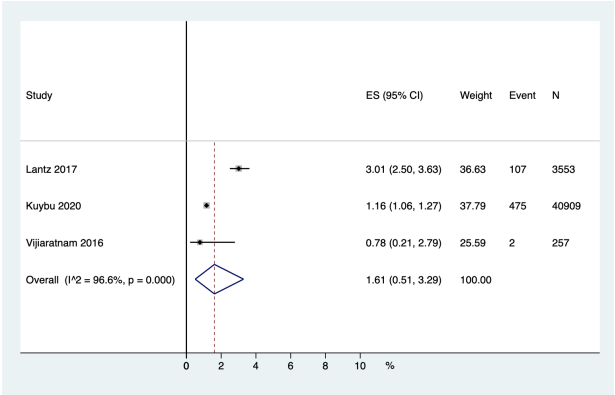


Figure 2. Association between migraine with aura and atrial fibrillation

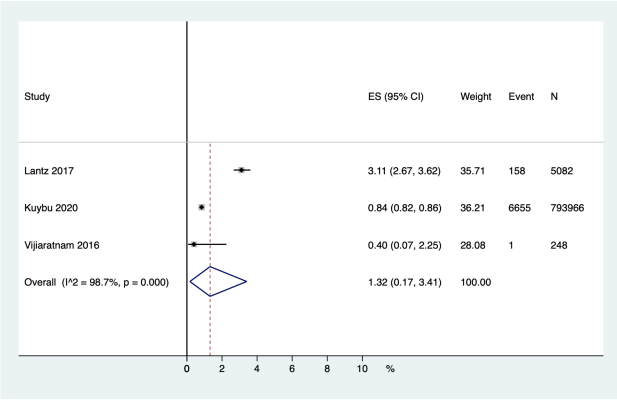


Figure 3. Association between migraine without aura and atrial fibrillation

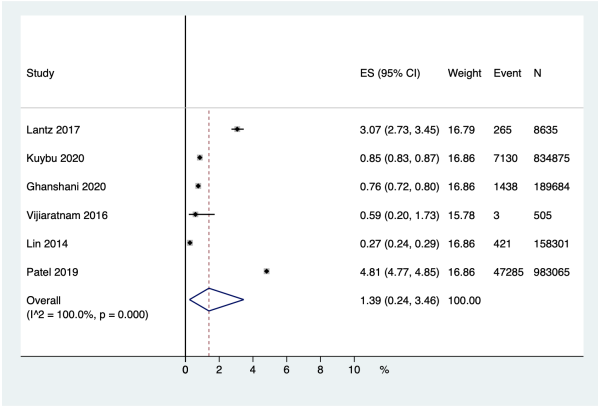


Figure 4. Overall association between migraine and atrial fibrillation

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Cohort studies								
Studies	Representativeness of exposed cohort	Non-exposed cohort drawn from same community as exposed cohort	Ascertainment of exposure (secure record, structured interview)	Demonstrates that outcome was not initially present	Assessment of outcome (record linkage)	Follow-up at least a year	Adequacy of follow-up (complete, or describes characteristics of missing subjects)	Comparability of cohorts on the basis of the design or analysis
Lantz, 2017	*	*	*	*		*	*	**
Ghanshani, 2020		*	*	*	*	*	**	*
Vijaratnam, 2016	*		*	*	*	*	**	*
Case Control								
Studies	Representativeness of Cases	Is the case definition adequate?	Selection of controls	Definition of controls	Ascertainment of exposure	Same method of ascertainment for cases and controls	Non-response rate	Comparability of cases and controls on the basis of the design or analysis
Lin, 2014	*	*	*	*	*	*	*	*
Cross Sectional								
Studies	Representativeness of the sample	Sample size	Non respondents	Ascertainment of the exposure	Comparability	Assessment of outcome	Statistical Test	
Kuybu, 2020	*	*	*	*	**	**	*	
Patel, 2019	*	*	*	*	**	**	*	

Table 2. Newcastle-Ottawa Scale for Cohort Studies, Case Control Studies and Cross-Sectional Studies included