

Anticoagulation and Paradoxical Protectors in Hypertrophic Cardiomyopathy with Sleep Apnea : Implications for Stroke Prevention

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ABSTRACT

This commentary examines the key findings and implications of the recent study by Chen et al., on stroke risk in patients with coexisting Hypertrophic Cardiomyopathy (HCM) and Sleep Apnea Syndrome (SAS). The original analysis of a national inpatient cohort revealed a stroke prevalence of 3.3% in this high-risk population and identified several independent risk factors, including female sex, hypertension, peripheral vascular disease, and Urinary Tract Infection (UTI). Notably, it also reported paradoxical inverse associations with obesity, Chronic Heart Failure (CHF), and anticoagulant use. This short commentary focuses on the most innovative aspects: The potential protective role of anticoagulation with overt Atrial Fibrillation (AF) and the clinical relevance of novel risk factors like UTI and the obesity paradox. We argue that these findings challenge conventional stroke risk stratification and underscore the need for integrated management and future prospective trials to refine prevention strategies in this vulnerable cohort.

Keywords: Hypertrophic cardiomyopathy; Sleep apnea; Stroke; Anticoagulation; Risk factors; Obesity paradox

DESCRIPTION

The study by Chen and colleagues offers a pivotal, large-scale characterization of stroke risk in patients dually diagnosed with Hypertrophic Cardiomyopathy (HCM) and Sleep Apnea (SAS). Its significance extends beyond risk quantification to uncovering associations that challenge traditional cardiovascular risk models, thereby raising critical questions for clinical practice and future research. This commentary not only summarizes the key findings but also delves into their implications regarding proactive anticoagulation in patients with atrial fibrillation and innovative management strategies for stroke prevention.

The protective role of anticoagulation: A case for broader application?

The most notable finding is the independent inverse association between anticoagulant use and stroke risk (adjusted odds ratio 0.76), which remained significant after controlling for Atrial Fibrillation (AF) and other confounders. Interestingly, patients with Hypertrophic Cardiomyopathy and Sleep Apnea Syndrome (HCM-SAS) who had comorbid Chronic Heart Failure (CHF) showed a weaker association with stroke—a phenomenon potentially attributable to a higher likelihood of anticoagulation initiation in this group for AF management or cardioembolic prophylaxis.

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This interpretation aligns with contemporary high-level evidence. A 2024 study-level meta-analysis in *Circulation*, synthesizing data from the NOAH-AFNET 6 and ARTESiA trials, concluded that oral anticoagulation with edoxaban or apixaban reduces stroke risk in patients with device-detected AF, underscoring the net clinical benefit of such therapy [1]. Similar findings have been reported in an article published in *The New England Journal of Medicine* [2]. Furthermore, a 2025 review in *The BMJ* indicated that patients with AF and concomitant HCM face a 1.5-fold higher risk of thromboembolic events compared to those with AF alone, independent of CHA2DS2-VASc scores, with strokes often occurring even in the absence of traditional risk factors [3]. The pathophysiological link is reinforced by evidence from *Circulation Research*, which reports a four-fold higher prevalence of AF in individuals with Obstructive Sleep Apnea (OSA) and elaborates on the mechanistic pathways linking OSA, AF, and stroke [4].

Collectively, these insights suggest a significant, possibly underappreciated, potential for proactive anticoagulation in the HCM-SAS population. We hypothesize that patients with HCM-SAS may represent a high-risk cohort for stroke irrespective of documented AF status. Therefore, we propose prospective randomized trials to evaluate the efficacy and safety of direct anticoagulation in preventing stroke and systemic embolism in patients with HCM-SAS, with or without concomitant AF.

Insights for stroke prevention from unexpected and intriguing findings

Undeniably, both our findings and the pathophysiological perspective confirm a high stroke risk in patients with coexisting HCM and SAS. The interplay between HCM and SAS fosters a prothrombotic state, potentially through mechanisms like intermittent hypoxia, systemic inflammation, atrial dysfunction, and blood stasis—even without sustained AF. Anticoagulants may counteract this inherent hypercoagulability. Therefore, proactive stroke prevention in HCM-SAS patients is crucial, underscoring the need for prospective studies in this population.

Regarding stroke prevention in HCM-SAS patients, we propose the following points based on our results. First, the positive association between urinary tract infection and stroke suggests that infection control may be an underutilized preventive strategy. Second, the counterintuitive inverse association between obesity (measured by BMI) and stroke indicates that BMI alone may be a suboptimal metric for risk management in this cohort; focusing on abdominal obesity might be more appropriate. This aligns with findings from studies emphasizing the stronger predictive value of waist circumference over BMI for cardiovascular outcomes [5,6]. Finally, as discussed in the

previous section, we recommend more proactive anticoagulation therapy for HCM-SAS patients with comorbid AF.

CONCLUSION

We advocate for prospective trials focused on stroke prevention in HCM-SAS patients, incorporating the following key considerations: (1) Vigilant monitoring and management of infections, particularly in older patients. (2) Utilizing measures of abdominal obesity rather than BMI alone for risk stratification and management of obese individuals. (3) Implementing more aggressive anticoagulation therapy in patients with or without concomitant atrial fibrillation.

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DISCLOSURES

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REFERENCES

- McIntyre WF, Benz AP, Becher N, Healey JS, Granger CB, Rivard L, et al. Direct oral anticoagulants for stroke prevention in patients with device-detected atrial fibrillation: A study-level meta-analysis of the NOAH-AFNET 6 and ARTESiA trials. *Circulation*. 2024;149(13):981-988.
- Healey JS, Lopes RD, Granger CB, Alings M, Rivard L, McIntyre WF, et al. Apixaban for stroke prevention in subclinical atrial fibrillation. *N Engl J Med*. 2024;390(2):107-117.
- Sikand N, Stendahl J, Sen S, Lampert R, Day S. Current management of hypertrophic cardiomyopathy. *bmj*. 2025;389:e077274.
- Staerk L, Sherer JA, Ko D, Benjamin EJ, Helm RH. Atrial fibrillation: Epidemiology, pathophysiology, and clinical outcomes. *Circ Res*. 2017;120(9):1501-1517.
- Su X, Li K, Yang L, Yang Y, Gao Y, Gao Y, et al. Associations between abdominal obesity and the risk of stroke in Chinese older patients with obstructive sleep apnea: Is there an obesity paradox?. *Front Aging Neurosci*. 2022;14:957396.
- Tutor AW, Lavie CJ, Kachur S, Milani RV, Ventura HO. Updates on obesity and the obesity paradox in cardiovascular diseases. *Prog Cardiovasc Dis*. 2023;78:2-10.