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Review

The impact of yoga on atrial fibrillation: A review of The Yoga My Heart Study



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ABSTRACT

Atrial fibrillation is a common arrhythmia affecting thousands of individuals worldwide. It is a conduction disorder that causes the heart to beat irregularly and rapidly. There are a few medical approaches to manage this costly health care burden: antiarrhythmics to maintain normal sinus rhythm, beta blockers to achieve rate control while allowing atrial fibrillation to persist, and electro-physiologic intervention for rate and rhythm control. These treatments can be costly and are not without side effects. Yoga, an intervention that is available to people worldwide, has shown some promise in combating this widespread heart disorder.

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1. Introduction

The Yoga My Heart Study was a single center study that brought to light the therapeutic impact a noninvasive, medication-free intervention has on a costly disease. Atrial fibrillation (AF) is a common cardiac arrhythmia that affects two to three million people worldwide. It is associated with significant morbidity and is also an independent risk factor for mortality. One of the most debilitating complications of the disease is thromboembolic stroke, though it is also known to precipitate and worsen the outcomes of congestive heart failure, a disease already known to represent a significant financial burden [1]. The treatment of AF and its associated complications

increases healthcare resource utilization and contributes to increasing costs of healthcare, particularly costs associated with hospitalization (Fig. 1).

2. Discussion

Current AF treatment mainly consists of antiarrhythmic drugs (AADs) and/or catheter ablation. Unfortunately, both strategies have met with less than optimal results and patient satisfaction. While catheter ablation may offer up to 70% of patient's freedom from AF, this is at the toll of an invasive procedure. Furthermore, freedom from AF is often defined on the basis of symptom reduction rather than continuous monitoring for true freedom from arrhythmia [3]. While new, promising strategies such as FIRM and ganglionatedplexi ablation are on the, they are still associated with procedure-related risks including cardiac perforation, valvular injury, esophageal-atrial fistula formation, and

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Yoga Training Effects on Reducing:

Symptomatic Atrial Fibrillation Episodes	3.8 ± 3 vs. 2.1 ± 2.6	p < 0.001
Symptomatic non Atrial Fibrillation episodes	2.9 ± 3.4 vs. 1.4 ± 2.0	p < 0.001
Asymptomatic Atrial Fibrillation Episodes	0.12 ± 0.44 vs. 0.04 ± 0.20	p < 0.001

Fig. 1. Yoga training effects on reducing.

phrenic nerve injury [4–6]. In addition, many patients who suffer from AF have significant comorbidities that preclude invasive strategies and effective AADs and may require an alternative treatment strategy [7].

In the study conducted by Lakkireddy et al., the authors tested the hypothesis that yoga could reduce the burden and symptoms of AF. This was a small, single center trial that ultimately included 49 participants. The unique approach of this study involved patients serving as their own controls; for the first 3 months, patients continued standard AF AAD therapy, followed by 3 months of 60-min biweekly yoga sessions. Patients were also encouraged to practice yoga at home on a daily basis. The primary outcome was a composite of the reductions in symptomatic AF, symptomatic non-AF, and asymptomatic AF episodes as recorded by a diary and correlated with a non-looping event monitor. Strikingly, the results validate the ability of yoga practice to reduce patient-reported AF symptoms. It also demonstrated a statistically significant impact on quality of life (QoL), mental health, physical functioning, depression, and anxiety. Yoga training reduced symptomatic AF episodes (3.8 ± 3 vs. 2.1 ± 2.6 , $p < 0.001$), symptomatic non-AF episodes (2.9 ± 3.4 vs. 1.4 ± 2.0 ; $p < 0.001$), asymptomatic AF episodes (0.12 ± 0.44 vs. 0.04 ± 0.20 ; $p < 0.001$), and depression and anxiety ($p < 0.001$) while improving, QoL parameters including physical functioning, general health, vitality, social functioning, and mental health as assessed using the SF-36 ($p = 0.017$, $p < 0.001$, $p < 0.001$, $p = 0.019$, and $p < 0.001$, respectively). There were significant decreases in heart rate and systolic and diastolic blood pressure after yoga training ($p < 0.001$) [2].

Arguably as importantly, there was an objective reduction in AF burden. This is an important finding as many other studies of AF interventions rely solely on subjective history and intermittent EKGs. Furthermore, the study demonstrated a nonpharmacological approach to improve overall QoL in patients with a common medical condition [2]. This may directly result in decreased hospitalization and healthcare costs. Yoga is also an intervention free from medication-related side effects or the complications observed with cardiac ablation. Although the study does not present yoga as a treatment for AF, it does show it to be a favorable adjunct to current therapies.

3. Conclusion

Future directions for the study of the effect of yoga on AF are broad. A larger, randomized, and multi-center trial would certainly help validate the above findings. In addition, a longer-term follow-

up would be needed to ensure the results persist, as this is a common weakness of other interventions. It may also be of value to echocardiographically monitor for signs of positive remodeling such as decreased left atrial volume over time as another potential benefit of yoga with broad antiarrhythmic potential.

Disclosures

There are no conflicts of interest, financial associations, or relationships that could influence the objectivity, integrity, or interpretation of this publication.

Conflict of interest

No grants or conflicts of interest.

References

- [1] Reynolds M.R, Essebag V. Economic burden of atrial fibrillation: implications for intervention [published online 04.04.12].
- [2] Lakkireddy D, Atkins D, Pillarisetti J, et al. Effect of yoga on arrhythmia burden, anxiety, depression, and quality of life in paroxysmal atrial fibrillation: The YOGA My Heart Study. *J Am Coll Cardiol* 2013;61:1177–82. <http://dx.doi.org/10.1016/j.jacc.2012.11.060>.
- [3] Steinberg JS, Palekar R, Sichrovsky T, et al. Very long-term outcome after initially successful catheter ablation of atrial fibrillation. *Heart Rhythm* 2014;11:771–6.
- [4] Pokushalov E, Romanov A, Artyomenko S, et al. Ganglionated plexi ablation for longstanding persistent atrial fibrillation. *Europace* 2010;12:342–6.
- [5] Narayan SM, Baykaner T, Clopton P, et al. Ablation of rotor and focal sources reduces late recurrence of atrial fibrillation compared with trigger ablation alone: extended follow-up of the CONFIRM trial (Conventional Ablation for Atrial Fibrillation With or Without Focal Impulse and Rotor Modulation). *J Am Coll Cardiol* 2014;63:1761–8.
- [6] Dagres N, Hindricks G, Kottkamp H, et al. Complications of atrial fibrillation ablation in a high-volume center in 1,000 procedures: still cause for concern? *J Cardiovasc Electrophysiol* 2009;20:1014–9.
- [7] LaMori J, Mody S, Gross H, et al. Burden of comorbidities among patients with atrial fibrillation. *Ther Adv Cardiovasc Dis* 2013;7:53–62.