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Letter to Editor

Wearable Technologies: An Emerging Tool for Early Detection of Cardiac Arrhythmias in India

Prachi Jain Rai* and Subhash Chandra

DM Cardiology, Assistant Professor, Department of Cardiology, UPUMS, Saifai, Uttar Pradesh, India

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***Corresponding author:** Dr Prachi Jain Rai, DM Cardiology, Assistant Professor, Department of Cardiology, UPUMS, Saifai, Uttar Pradesh, India,
E-mail: docalligator1@gmail.com

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Abstract

Cardiac arrhythmias, particularly atrial fibrillation, are an increasing cause of stroke and heart failure in India, often remaining undiagnosed due to their paroxysmal or asymptomatic nature. Wearable technologies, including smartwatches and handheld electrocardiogram devices, enable ambulatory rhythm monitoring using photoplethysmography and single-lead ECG. These tools may facilitate earlier detection and timely referral, especially in settings with limited access to conventional monitoring. However, challenges related to false-positive alerts, cost, data interpretation, and clinical integration persist. This letter discusses the potential role of wearable technologies as adjunctive screening tools for arrhythmia detection in the Indian healthcare setting and emphasizes the need for population-specific validation and clear clinical pathways.

Sir,

The increasing burden of cardiac arrhythmias, particularly atrial fibrillation (AF), has emerged as a significant contributor to stroke and heart failure in India. A major challenge in addressing this problem is the delayed or missed diagnosis of paroxysmal and asymptomatic arrhythmias, which often remain undetected until a catastrophic event occurs.

In recent years, wearable technologies such as smartwatches, fitness bands, and handheld electrocardiogram devices have demonstrated promising potential in the early detection of arrhythmias. These devices, equipped with photoplethysmography and single-lead ECG capabilities, allow continuous or intermittent rhythm monitoring in ambulatory settings. Studies from diverse populations have shown reasonable sensitivity and specificity for AF detection, suggesting their utility as screening tools rather than diagnostic replacements [1,2].

In the Indian context, wearables may offer unique advantages. With a growing penetration of smartphones and digital health platforms, wearable-based screening could help bridge gaps in access to healthcare, especially in semi-urban and rural regions. Early identification of arrhythmias can facilitate timely confirmatory testing, initiation of anticoagulation, and appropriate rhythm or rate control strategies, thereby reducing the risk of stroke and hospitalization.

However, several challenges must be addressed before widespread adoption. Issues related to false-positive alerts, data interpretation, cost, digital literacy, and integration with existing healthcare systems remain significant. Clear regulatory frameworks, clinician-led validation, and patient education are essential to ensure responsible and effective use of wearable technologies [3].

In addition, the integration of wearable-derived data into routine clinical workflows warrants careful consideration. For wearable technologies to be clinically meaningful, there

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must be standardized protocols for data validation, physician review, and follow-up testing. Primary care physicians and cardiologists should be familiar with interpreting wearable alerts and distinguishing clinically relevant findings from artefacts. Incorporating wearable data into electronic health records and telecardiology platforms may further enhance continuity of care, reduce unnecessary clinic visits, and optimize resource utilization, particularly in high-volume outpatient settings [4,5].

Conclusion

In conclusion, wearable devices represent a promising adjunct in the early detection of cardiac arrhythmias in India. Future studies focusing on Indian populations and cost-effectiveness analyses are needed to define their role in routine clinical practice.

References

1. Goel D, Gupta R, Keshri T, Rana S. Prevalence of atrial fibrillation in acute ischemic stroke patients: a hospital-based study from India. Brain Circulation. 2020;6(1):19–25. Available from: https://doi.org/10.4103/bc.bc_19_19
2. Silva MS, Resende EH, Silva JT. The importance of early diagnosis and treatment of atrial fibrillation for the prevention of ischemic stroke. Revista Medica (São Paulo). 2024;103(4):224916.
3. Soni A, Earon A, Handorf A, Fahey N, Talati K, Bostrom J, et al. High burden of unrecognized atrial fibrillation in rural India: an innovative community-based cross-sectional screening program. JMIR Public Health and Surveillance. 2016;2(2):e6517. Available from: https://doi.org/10.2196/publichealth.6517
4. Morillo CA, Banerjee A, Perel P, Wood D, Jouven X. Atrial fibrillation: the current epidemic. Journal of Geriatric Cardiology. 2017;14(3):195–203. Available from: https://doi.org/10.11909/j.issn.1671-5411.2017.03.011
5. Soni A, Karna S, Fahey N, Sanghai S, Patel H, Raithatha S, et al. Age-and-sex stratified prevalence of atrial fibrillation in rural Western India: results of SMART-India, a population-based screening study. International Journal of Cardiology. 2019;280:84–88. Available from: https://doi.org/10.1016/j.ijcard.2018.12.016

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