

A PAN-INDIA SCREENING FOR ELECTROCARDIOGRAPHIC ABNORMALITIES IN THE ADULT POPULATION

Cardiology

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KEYWORDS

To The Editor,

We intend to contribute our findings about the prevalence of cardiac arrhythmias in the Indian population. Cardiovascular diseases (CVD) are one of the world's main causes of mortality and disability, accounting for 31.8% of all deaths. Moreover, according to the Global Burden of Disease (GBD) study, there were 422 million instances of CVD in 2015, with South Asia accounting for the largest contributor.^[1] CVDs such as heart failure (HF) and cardiac arrhythmias (CA) are the major non-communicable diseases among the Indian population.^[2] Arrhythmia refers to an abnormal heartbeat. Patients with arrhythmia show a wide range of presentations, from palpitations to sudden cardiac arrest. Arrhythmia is generally associated with an elevated risk of cardiovascular diseases including stroke, ischemic heart disease, HF, and sudden cardiac death. Early diagnosis and treatment of arrhythmia are crucial to prevent risks of CVDs. Studies highlighting the prevalence of cardiac arrhythmia in the Indian population are lacking. The current study aimed to report the prevalence of arrhythmias in the Indian population. The study was conducted in the adult population from 20 cities of India, including Ahmedabad, Bengaluru, Bhubaneswar, Chandigarh, Chennai, Dubai, Ernakulum, Ghaziabad, Hubli, Guwahati, Hyderabad, Indore, Jaipur, Kolkata, Lucknow, Madurai, Mumbai, Nagpur, Pune, and Vijayawada. Electrocardiograph (ECG) screening was done for the detection of abnormalities.

A total of 4,120 patients were included in the study. Increased heart rate (HR) is considered a risk factor for cardiovascular mortality and morbidity among the general population.^[3] The mean (SD) HR of the patients in the current study was reported as 86.87 (17.99) beats per minute (bpm). The result was consistent with the BEAT study in Indian patients where mean HR was reported as 82.79 (10.41) bpm and was affected by systolic blood pressure (SBP), diastolic blood pressure (DBP), and body mass index.^[4] Dalal et al. reported that HR can be considered a prognostic marker in diagnosing tachycardia.^[5] Avram et al. stated that normal resting HR as 60-90 bpm, however, American Heart Association reported normal sinus HR values between 60 and 100 bpm.^[6] In the current study, most of the patients had HR between 81-100 bpm (47.31%), followed by 33.47% of the patients with HR 60-80 bpm, 14.25% of the patients with HR 101-120 bpm, 1.77% of the patients with HR >120 bpm, and 1.07% of the patients with HR <60 bpm. A heart rate <60 bpm is considered bradycardia, HR between 60 and 100 bpm considered as normal, however, an HR >100 bpm is considered tachycardia. Real-world HR from Health eHeart study reported in 66,788 participants, where mean HR was reported as 79.1 (14.5) bpm, however, the 95th percentile of HR was 110 bpm in patients aged between 18 and 45 years, 100 bpm in patients aged 45-60 years, and 95 bpm in patients >60 years old.^[6] Among all the patients, 76.33% had a normal ECG. Moreover, the prevalence of patients with tachycardia and possible atrial fibrillation (AF) was 15.19% and 1.14%, respectively (Figure 1). Pan-arrhythmia and HF observational study by Vora et al. reported the incidence of cardiac arrhythmia in

2,205 patients. Around 58% of patients presented with bradyarrhythmia, 15% with AF, and 15% with supraventricular tachyarrhythmia.^[7] Atrial fibrillation was considered as World's most common cardiac arrhythmia which increases the risk of stroke up to five-fold.^[7] Furthermore, Smartphone Monitoring for AF in Real-Time - India (SMART-India) study revealed the prevalence of AF as 1.6%, however, around 415 million people may have arrhythmia.^[8,9] The prevalence of arrhythmias was high in the Indian population, necessitating continuous screening to reduce future risks. Awareness of AF is low in India considering non-communicable diseases.^[9] Furthermore, India's population is projected to reach 1.6 billion in the next 30 years, which will increase the burden of AF. This emphasized the importance of early diagnosis, timely interventions, and treatment plans to reduce future complications. The National Programme was conducted by the Government of India to prevent cancer, diabetes, cardiovascular disease, and stroke via opportunistic screening in individuals over 30 years of age.^[8] Given the geographic and socioeconomic diversity of India, evidence-based research and decentralised public health strategies are crucial.

Declarations

Competing Interest:

Dr. Amit Gupta, Dr. Shweta Ghatge, and Dr. Snehal Bansode are employees of USV Pvt. Ltd, Mumbai. All other authors have nothing to disclose.

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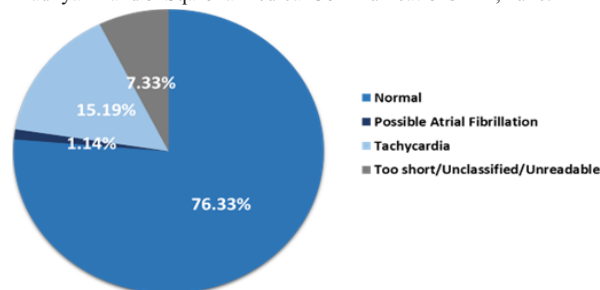


Figure 1: Distribution of cardiac rhythm patterns

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