

Prevalent Cardiac Arrhythmias Detected on ECG Among Adult Patients at District Headquarter Hospital Charsadda

Salar Ahmad

Cardiovascular Technologist, PAEC General Hospital, Islamabad, Pakistan

Ahmad Shafiq

Cardiovascular Technologist, King Faisal Specialist Hospital and Research Center Riyadh KSA

Abid Ullah Shah

Lecturer Cardiology, College of Medical Technology, Bacha Khan Medical College, Mardan, Pakistan

Qaiser Mehmood Saleem

PMO, PAEC General Hospital, Islamabad, Pakistan

Alina Salar

Lecturer Microbiology, Capital College of Medical Sciences, Islamabad, Pakistan

Adeel Ahmed Khalil*

Lecturer Cardiology, College of Medical Technology, Bacha Khan Medical College, Mardan, Pakistan. Email: adls143.aa@gmail.com

Author Details

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Corresponding E-mail & Author*:

Adeel Ahmed Khalil*

Lecturer Cardiology, College of Medical Technology, Bacha Khan Medical College, Mardan
Email: adls143.aa@gmail.com

Abstract

Background Cardiac arrhythmias are the most common disease and the most common cause of death among cardiovascular diseases (CVDs). Given the importance of arrhythmias, this study aims to determine the prevalent cardiac arrhythmias detected by ECG among adult patients of both genders presenting District Headquarter (DHQ) Hospital, Charsadda.

Methodology: This cross-sectional study was conducted at the DHQ Hospital, Charsadda. A total of 355 consecutive adult patients of both genders who presented with various heart diseases A 12-lead Electrocardiography (ECG) was done in all patients with signs/symptoms of CVDs. ECG was interpreted by a qualified cardiologist diagnosis were established. After informed consent, data were collected through a questionnaire and analyzed through SPSS.

Result: Among the total (355) participants majority (62.8%) were females. Cardiac arrhythmias were found in 50

(14.08%) participants; of these majority (29.3%) had sinus tachycardia, ventricular tachycardia (VT) and ventricular fibrillation (VF) found in 0.2% respectively.

Conclusion: Among various cardiac arrhythmias, sinus tachycardia was more prevalent in this study, and life-threatening arrhythmias was found to be less common.

Keyword: Cardiovascular Diseases, Arrhythmias, Adult Age, Electrocardiography

Introduction

Cardiac arrhythmias are collection of situations in which the heartbeat becomes abnormal, identified by unusual electrical conduction resulting in inadequate pumping. Cardiac arrhythmias are unbalanced, too fast, or too slow. If above 100 beats per minute in adults is called tachycardia, while below 60 beats per minute is called bradycardia. A few types of arrhythmias have no symptoms when symptoms exist, these may include palpitations to death, i.e., in ventricular fibrillation (1).

Atrial Fibrillation is the commonest arrhythmia that enhances the risk for heart disease and stroke, and about one million adults in the United States (US) have been diagnosed with atrial fibrillation (AF) (2,3). Ventricular arrhythmias mainly include premature ventricular beats, Ventricular tachycardia (VT), and ventricular fibrillation (VF). VT may arise from distal to the bundle of His, ventricular myocardium, the distal conduction system and both VT or ventricular fibrillations are most leading causes of sudden cardiac deaths in the US, with an estimated rate of 300,000 deaths annually (4) and The main risk factors for premature ventricular beats such like age, myocardial infarction, tobacco use, high blood cholesterol, high blood pressure, physical inactivity, obesity overweight, diabetes mellitus, rheumatic heart disease, family history of coronary artery disease (CAD) and alcohol consumption (5).

Among bradycardia, first atrioventricular (AV) block, second-degree AV block, and third-degree AV block, the most common in ischemic heart diseases (6). To prevent further clinical complications, to aware healthcare providers, and to guide further treatment, this study aims to determine the prevalent type of cardiac arrhythmias detected on ECG to prevent further complications and to aware clinical at District Head Quarter Hospital, Charsadda.

Methodology

This cross-sectional study was conducted in the Cardiology department, District Headquarter Hospital, Charsadda, for six months (June to November 2016). A total of 355 patients were enrolled in this study. A questionnaire comprising all variables like sinus tachycardia, sinus bradycardia, atrial fibrillation, atrial flutter, premature atrial beats, ventricular premature beats, ventricular tachycardia, supra ventricular tachycardia, ventricular fibrillation, and atrioventricular block. A 12 lead Electrocardiography (ECG) was done in all those patients with palpitations, dyspnea, chest pain and syncope. ECG was interpreted and diagnoses were established by qualified cardiologist, all adult patients (18-70 years age) of both genders included in this study and children who had heart diseases were excluded from the study because there were no facilities for children in DHQ Hospital, Charsadda. After ethical approval data were collected and analyzed through Statistical Package for the Social Sciences (SPSS) version 22.

Result

Among the total 355 participants, out of total 132 (37.2%) were males and 223 (62.8%) were females. Cardiac arrhythmias among patients of DHQ hospital, Charsadda was found in 50 (14.08%) participants. Among the arrhythmias, sinus tachycardia was found in 29.3% while sinus bradycardia was found in 11.83% and 2.89% had atrial fibrillation, 1.97% with premature ventricular contraction, 0.28% with Ventricular tachycardia, 0.28% with ventricular fibrillation and 3.94% found with atrioventricular block (Fig 1).

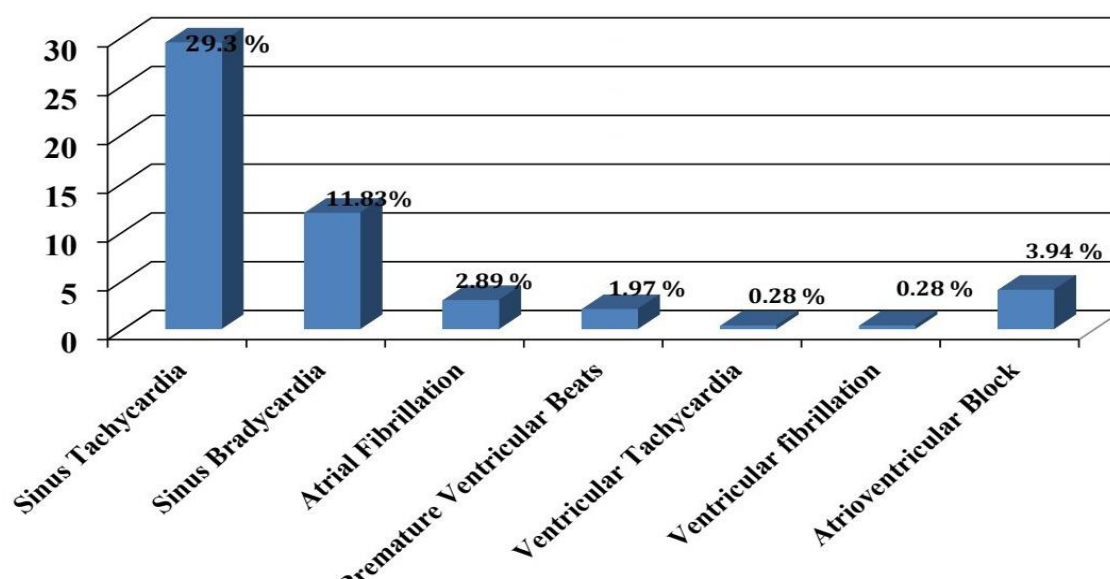


Figure 1 shows the percentage of different cardiac arrhythmias

Discussion

Cardiovascular disease encompasses a wide range of disorders, including diseases of cardiac muscle and the vascular system supplying the heart and brain (7). The World Health Organization (WHO) reported that about 19 million cardiovascular disease deaths occurred in 2015 (8). Sudden cardiac death (SCD) appears just about 50 cases per 200,000 people per annum in every country of Asia, mostly due to cardiac arrhythmias (9). According to a study, the burden of atrial fibrillation accounts for approximately 60% in Pakistan (10). Cardiac arrhythmias are one of the most common serious cardiac disorders that most people are grappling with around the world. In the present study, women were found to be more prone toward arrhythmias than men. Overall cardiac arrhythmias were found in 14.08% participants less than the previous study 30% prevalence of cardiac arrhythmias in Pakistan. Another study in Vasei Hospital of Sabzevar Iran, showed that sinus tachycardia was found in 3% participants, and sinus bradycardia in 5.3% (11) more than this study results. A study was conducted in China showed atrial fibrillation in 2.0% participants (12) as similar to this study. Another descriptive cross-sectional study was conducted at Hayatabad Medical Complex, Peshawar, which shows in 9.1% (13) higher than this study. Another study was conducted at the Department of Internal Medicine, Yonsei University, Wonju College of Medicine, Republic of Korea, in 2013, which showed premature ventricular contraction in 40% participants (14). Furthermore, a retrospective cohort study was conducted in the tertiary care teaching hospital Mayo Clinic, Florida, United States of America November 2009 to 2012, and the study reported among 103 patient's only one patient had Ventricular tachycardia (15). Similar to our study result of ventricular tachyarrhythmias (0.28%), another study reported 0.2% ventricular tachyarrhythmias (16). Nearly close to our result of AV block (3.94%), another cross-sectional study was conducted in the department of medicine, Gajara Raja Medical College, Gwalior, India (2012 & 2013) reported atrioventricular blocks in 5% participants (17). In summary, cardiac arrhythmias are quite high in the local population, with variable results on their pattern. Continuous monitoring and awareness help in reducing further complications and improving in prognosis of patients.

Conclusions

In this study, Cardiac arrhythmias among adult patients both genders at District Head Quarter Hospital, Charsadda was found in 14.08% participants. Sinus tachycardia and

sinus bradycardia was more frequent, and life-threatening arrhythmias were found less common. Timely diagnosis and awareness will help in further reduction in complications; improve prognosis, and patients' life quality.

Limitation

This was a cross-sectional study and a hospital-based study so we cannot generalize results over the community and the area. Also, risk factors of cardiac arrhythmias were not included, so further study will be needed to determine the risk factors of cardiac arrhythmias.

Recommendation

It is recommended that all medical staff should have enough knowledge about predisposing factors and have enough education to be able to manage cardiac arrhythmias, and community awareness about arrhythmias signs and symptoms are important to prevent further complications.

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