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## **To study an elderly people's abnormal electrocardiographic changes at government hospital**

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**Abstract**--Population aging is one of the demographic characteristics of the 21st century. This process is necessarily accompanied by an increase in the prevalence of cardiovascular diseases that may have expression on the electrocardiogram (ECG). Aim: to study an elderly people's abnormal electrocardiograph at government hospital. Material and Methods:All the Patients were admitted in the department of Medicine at Government medical college, Kadapa, Andhra Pradesh, India. Study period January 2021 to june 2021These participants were then clinically examined and studied in accordance with the study's guidelines to generate the necessary data, which was then categorised, tabulated, and classed before being subjected to analysis. Total 300 persons should taken in the study.150 were healthy one and 150 were patients. The age of the persons should be 65 years and above, both the sex were included. Conclusion: Atrial fibril-lation was the most prevalent rhythm abnormality. With no association to sex or skin tone, ventricular repolarization changes outweighed ventricular depolarization changes. There were a sizable number of instances with extended QT, left ventricular hypertrophy, and anomalous left atrium.

**Keywords**--electrocardiograph, elder people, bradycardia.

## **Introduction**

Population aging is one of the demographic characteristics of the 21st century. This process is necessarily accompanied by an increase in the prevalence of cardiovascular diseases that may have expression on the electrocardiogram (ECG). The definition of ageing is the body's inability to maintain homeostasis in the face of physiologic stress; this inability is linked to the person's decreased viability and increased susceptibility. The inability of the body to sustain homeostasis in the presence of physiological stress is the definition of ageing; this incapacity is connected to the person's decreasing viability and increasing sensitivity (1). In fact, the numerous harmful processes and agents that organisms experience throughout their lives contribute to the physiologic systems' progressive deterioration with age, which starts in adolescence. It appears that healing mechanisms throughout post-maturation and life cannot completely undo the harm. The physiologic systems gradually become less functioning as a result of the buildup of damage. (2).

The aorta and great arteries lose suppleness and compliance as they age. These changes lead to an increase in systolic arterial pressure, a rise in the impedance of left ventricular ejection, modest LV hypertrophy, and interstitial fibrosis as a result. (3-5). While cardiac output stays normal at rest, there is a greater dependence on the Frank Starling mechanism when the heart rate slows in order to increase stroke volume and maintain a normal cardiac output. When exercising, elderly individuals have less ability than younger patients to reach their maximum heart rate and oxygen consumption. However, the increased stroke volume maintained by the bigger LV diastolic volume seen with exercise maintains ejection fraction (EF) at a normal level. (6). To find these changes, an ECG examination is crucial. It aids in the detection of the alterations brought on by different diseases.

Left ventricular hypertrophy is a result of hypertension. Additionally, there are variations in heart rate and rhythm, manifested as conduction abnormalities. We can also use it to identify ischaemia and infarction, two conditions that indicate how the cardiac muscles are doing. An ECG might also be used to study the valvular changes at the chosen age. It is also beneficial in several therapeutic situations, such as systemic disorders of the heart, determining the impact of cardiac medications, problems with electrolyte balance, particularly potassium, and assessing the performance of cardiac pacemakers. (7,8). In this study is planned to detect the various ECG changes in the elderly population and its correlation with their clinical evaluation.

## **Material and Methods**

All the Patients were admitted in the department of Medicine at Government medical college, Kadapa, Andhra Pradesh, India. Study period : January 2021 to June 2021 These participants were then clinically examined and studied in accordance with the study's guidelines to generate the necessary data, which was then categorised, tabulated, and classed before being subjected to analysis. Total 300 persons should taken in the study.150 were healthy one and 150 were

patients. The age of the persons should be 65 years and above, both the sex were included.

### **Criteria for selection of persons**

- 1.Total 300 persons should taken in the study.150 were healthy one and 150 were patients.
- 2. The age of the persons should be 65 years and above, both the sex were included.

ECG recording which was done using PHILIPS 100 page writer machine, which recorded the twelve leads and a long rhythm strip at a time. ECG was taken by a single observer. All the patients included in the study were subjected to detailed history taking, thorough clinical examination and investigation. The study was conducted after obtaining Institutional Ethical Committee clearance and informed consent was obtained from the study participants. Five ml of whole blood samples were drawn into plain tubes to obtain serum samples after centrifugation at 4000rpm for 10 minutes. The obtained serum samples were used for biochemical analysis for estimating Hb, blood sugar, urea, serum creatinine and cholesterol. Patients who died during admission or those with a hospital stay of less than 24 hours were excluded from the trials.

### **Statistical analysis**

All the values were expressed as mean and standard deviation (mean  $\pm$  SD). The statistical analysis were done by using one way analysis of variance (ANOVA) using SPSS for windows version 11.5 (SPSS, Inc., Chicago). A p-value of <0.001 was considered to be statistically significant.

### **Results**

All the Patients were admitted in the department of Medicine at Rajiv Gandhi institute of Medial Sciences, Kadapa, Andhra Pradesh, India. These participants were then clinically examined and studied in accordance with the study's guidelines to generate the necessary data, which was then categorised, tabulated, and classed before being subjected to analysis. Total 300 persons should taken in the study.150 were healthy one and 150 were patients.

Table 1  
Shows Sex vise patients

S.NO	MALE	FEMALE
1.Healty one	75	75
2.patients	75	75

Table 2  
Shows Electrocardiogram

SEX	ELECTROCARDIOGRAM	
	MALE	FEMALE
Normal	65	75
Abnormal	85	75

In this study of elderly population it was observed that electrocardiogram was abnormal in 50.4% of them. The abnormality in electrocardiogram had no difference when analysis was made between males and females.

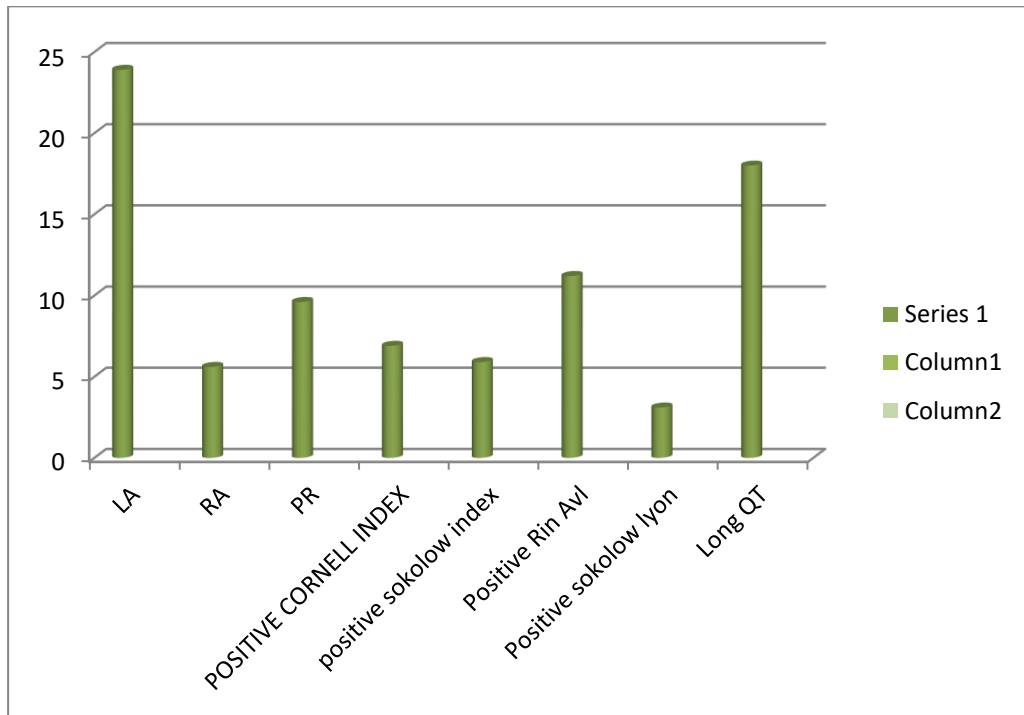


Figure 1. Prevalence of atrial abnormalities, left ventricular hypertrophy and long QT in patients with available electrocardiogram. Only the data of the patients where each variable could be analyzed are shown. RA, right atrium; LA, left atrium

## Discussion

The present study which aimed at analyzing the ECG changes of elderly persons above the age of 60 years was done in the department of Medicine at RIMS Govt medical college, kadapa. It included males and females randomly selected. All the findings associated with the electrocardiographic changes in these elderly persons were tabulated and analyzed in detail. In this study of elderly population it was observed that electrocardiogram was abnormal in 50.4% of them. The abnormality in electrocardiogram had no difference when analysis was made between males and females. This is in consistency with the findings in our study. The other

factors like males going out for work during working hours, females being more sick than males and that they tend to seek attention may also be responsible for this male and female distribution. On statistical analysis, however it was found that this difference between the number of males and females in the study group was insignificant.

### **Heart rate analysis of ECG**

The first step in the analysis of the ECGs of 300 elderly persons was the analysis of the rate. Abnormalities in the rate were the most common abnormality detected, as has been discussed earlier. Given a normal ventricular beat, rate was calculated as the time in seconds between two consecutive R waves divided by 60. If there were irregularities in the ventricular rhythm, the number of R waves in a certain time frame (six seconds) was tallied, and the result was converted to the number of R waves per minute. Between 60 and 100/min was thought to be the usual pace (9-11). Rate less than 60/min was regarded as bradycardia. Rate greater than 100/min was regarded as tachycardia.

### **Conclusion**

Atrial fibrillation was the most prevalent rhythm abnormality. With no association to sex or skin tone, ventricular repolarization changes outweighed ventricular depolarization changes. There were a sizable number of instances with extended QT, left ventricular hypertrophy, and anomalous left atrium.

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