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Research Article

## EXERCISE INDUCED VENTRICULAR TACHYCARDIA; PREVALENCE, CHARACTERISTICS & PROGNOSIS

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**Abstract:**

**Objective:** To determine frequency of exercise induced ventricular tachycardia, its characteristics and prognosis.

**Design & duration:** This is a cross sectional study completed in six months duration.

**Setting:** Study was conducted in cardiology unit of Bahawal Victoria Hospital Bahawalpur.

**Patients & methods:** Convenient probability sampling technique used. Healthy cases were included in the study. Exercise tolerance test done. Tachycardia noticed in all cases during exercise. Cardiac activity and ECG changes were observed. Patients of either gender, irrespective of age included in the study. Sample size was calculated using WHO sample size calculator. Frequency and percentage were calculated for qualitative variables. Mean, median and standard deviation calculated for quantitative variables. P-value less than 0.05 was considered significant. SPSS software version 21 was used for data analysis.

**Results:** Total 700 apparently healthy cases were studied. Exercise tolerance test was done in all cases and out of them 50(%) cases showed ventricular tachycardia. There were 68% female, and 32% male among them. Mean age of subjects was  $53.5 \pm 12.7$  years. Most of the cases were above 50 years of age. Heart rate was 140-160 in 44% cases.

**Conclusion:** Exercise induced ventricular tachycardia was observed in elderly people mostly having heart rate above 140/min and without any serious abnormality in cardiac activity while some of them showed coronary artery syndrome.

**Key words:** Exercise tolerance test, ventricular tachycardia, coronary artery syndrome, prognosis

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**INTRODUCTION:**

Abnormal, complex ectopic activity of ventricles either in routine work or exercise induced is associated with serious heart disease and may cause sudden death.<sup>1</sup> To diagnose such arrhythmias is very important to save life of the patient. Along with many markers used in cardiology, the significance of these ventricular arrhythmias in prediction of sudden death or heart disease is far from perfect.<sup>2-4</sup> Exercise induced tachycardia has been found much common even in military persons, police officers, high risk middle age men and people with hyperlipidemia.<sup>5</sup> Exercise tolerance test on a broad sample size with variable age is of much importance with minimum biasing and these results can be implemented on a community. Previously very few studies have been done in Pakistan in this perspective.<sup>6,7</sup> Elderly people have more chances of acquiring coronary heart disease and other cardiology problems. In our population apparently healthy people may have cardiac problems until they are diagnosed. That is a main cause of sudden deaths in our community, lack of diagnosis and cardiac care.<sup>8</sup>

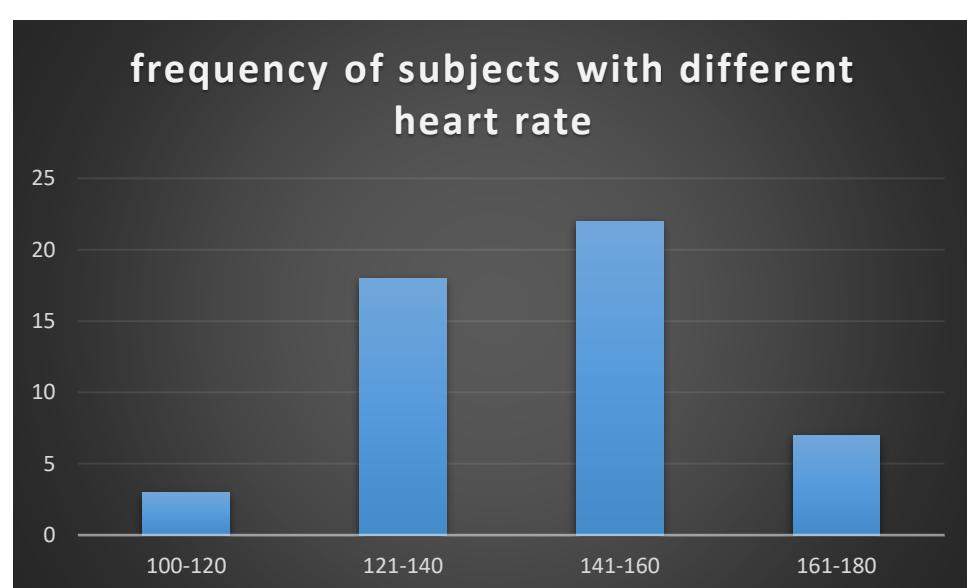
**PATIENTS AND METHODS:**

This is across sectional study conducted in cardiology unit of a tertiary care hospital. This study was started in January and completed in June 2020 after six months duration. Confidence level was

95% with 5% margin of error. Convenient probability sampling technique used. Healthy cases were included in the study. Exercise tolerance test done. Tachycardia noticed in all cases during exercise. Cardiac activity and ECG changes were observed. Patients of either gender, irrespective of age included in the study. Sample size was calculated using WHO sample size calculator. Frequency and percentage were calculated for qualitative variables. Mean, median and standard deviation calculated for quantitative variables. P-value less than 0.05 was considered significant. SPSS software version 21 was used for data analysis. Patients already having any cardiac disease or any other chronic disease were not included in this study.

**RESULTS:**

Total 700 apparently healthy cases were studied. Exercise tolerance test was done in all cases and out of them 50(7.1%) cases showed ventricular tachycardia. There were 68% female, and 32% male among them. Mean age of subjects was  $53.5 \pm 12.7$  years. Most of the cases were above 50 years of age. Heart rate was 140-160 in 44% cases. There was 1(2%) case between 20-30 years of age, 6(12%) subjects between 31-40 years, 10(20%) between 41-50 years, 14(28%) between 51-60 years and 19(38%) subjects above 60 years of age.

**Age distribution of subjects in study sample**

Age of subjects (years)	N	%
20-30	1	2
31-40	6	12
41-50	10	20
51-60	14	28
>60	19	38

**DISCUSSION:**

Ventricular tachycardia has been seen in 7.1% cases induced by exercise in apparently healthy people having dyslipidemia or coronary artery disease. Episodes of ventricular tachycardia were not sustained in young subjects. Mostly subjects having VT were male of elder age.<sup>9</sup> In this study VT was induced by treadmill exercise and it was asymptomatic in male population above 60 years of age. Abnormal, complex ectopic activity of ventricles either in routine work or exercise induced is associated with serious heart disease and may cause sudden death.<sup>10</sup> To diagnose such arrhythmias is very important to save life of the patient. Along with many markers used in cardiology, the significance of these ventricular arrhythmias in prediction of sudden death or heart disease is far from perfect.<sup>11</sup> Exercise induced tachycardia has been found much common even in military persons, police officers, high risk middle age men and people with hyperlipidemia. This is across sectional study conducted in cardiology unit of a tertiary care hospital. This study was started in January and completed in June 2020 after six months duration. Confidence level was 95% with 5% margin of error. Convenient probability sampling technique used. Healthy cases were included in the study. Exercise tolerance test done. Tachycardia noticed in all cases during exercise. Cardiac activity and ECG changes were observed. Total 700 apparently healthy cases were studied. Exercise tolerance test was done in all cases and out of them 50(7.1%) cases showed ventricular tachycardia. There were 68% female, and 32% male among them. Elderly people have more chances of acquiring coronary heart disease and other cardiology problems. In our population apparently healthy people may have cardiac problems until they are diagnosed.<sup>12</sup> That is a main cause of sudden deaths in our community, lack of diagnosis and cardiac care.<sup>13</sup> Apparently non symptomatic ventricular tachycardia episodes occur at peak of exercise and its prognosis is not same as in symptomatic non-sustained ventricular tachycardia. In our study subjects were not having apparent signs or symptoms of coronary artery disease.<sup>14</sup>

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