International Journal of Pharmaceutical Science Invention
ISSN (Online): 2319-6718, ISSN (Print): 2319- 670X
www.ijpsi.org Volume 12 Issue 3 ǁ May –June. 2023 ǁ PP. 15-18

Study on Safety and Efficacy of Amiodarone Administration Along with Beta -Blockers in Ventricular Tachycardia

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ABSTRACT:
Background: *Ventricular Tachycardia is a condition that refers to a high resting heart rate that is more than 100 beats per minute and wide QRS >120 milliseconds. Factors such as age and fitness level can affect it. In this condition, heart muscle needs more oxygen and in meant time the oxygen-starved cells can die leading to a heart attack. In treating Ventricular Tachycardia Amiodarone is the drug of choice and an antiarrhythmic drug. The purpose of the study is to evaluate safety and efficacy of Amiodarone along with Beta-blockers patients with ventricular tachycardia.*
AIM:
To evaluate the clinical safety and efficacy of Amiodarone administered along with β-blockers in ventricular Tachycardia and to check the recurrence
Materials and Methods*: A retrospective observational single centred study done in Durgabai Deshmukh hospital Vidya Nagar with a sample size of 60 patients with Ventricular Tachycardia and the data was collected from 2021- 2022, using data collection form, student T-test was performed.*
Results: *Among 60 patients with Ventricular Tachycardia 40 were male adults and 20 were female adults. A drastic improvement was seen in patients taking Amiodarone with Beta-blockers which led to the discharge the patient soon from the hospital. No new ADRs were reported.*
Conclusion*: In this study it concludes that the drug Amiodarone when given with beta-blocker in ventricular tachycardia is proved to be safe and effective.*
KEYWORDS: *Ventricular tachycardia, Amiodarone, anti-arrhythmic and beta-blockers*

Date of Submission: 02-05-2023 Date of acceptance: 14-05-2023

I. INTRODUCTION:

Ventricular Tachycardia:

Ventricular Tachycardia is a broad QRS of more than 120 milliseconds, or greater than 100 beats per minute, caused primarily by electrolyte abnormalities. It is defined as non-sustained or sustained VT if it lasts fewer than 30 seconds and is accompanied by tachyarrhythmia with more than three ventricular beats. Sustained VT is defined as VT that lasts longer than 30 seconds, and hemodynamic instability occurs in less than 30 seconds. Ischemic heart disease is the known cause of Ventricular Tachycardia. [(1)] The evaluation based on duration is the basic thing for treating ventricular tachycardia. This coordinates the care team to do efficacious treatment for the patients who are affected and get proper progress in the health of the patient.[(2)] There are different types of tachycardia depending on which part of the heart the problem. [(3)] The most common cause of Ventricular Tachycardia is ischemic heart disease

Based on QRS morphology, Ventricular tachycardia is divided into 2 types

1) **Monomorphic Ventricular Tachycardia** - Stable morphological QRS wave for the beat to beat
2) **Polymorphic Ventricular Tachycardia** - varies morphological QRS wave from beat to beat [(4).]

Torsades de pointes: It is a polymorphic form of Ventricular tachycardia with rapid QRS complexes which appear as undulating curves around the baseline in ECG [(5)]ECG is the important parameterfor the diagnosis of Torsades de pointes. For the prevention of Torsades de pointes correcting hypokalemia, hypocalcemia and hypomagnesemia are important. Hemodynamic stability is assessed. The complications can include ventricular fibrillation, sudden cardiac death [(7)]

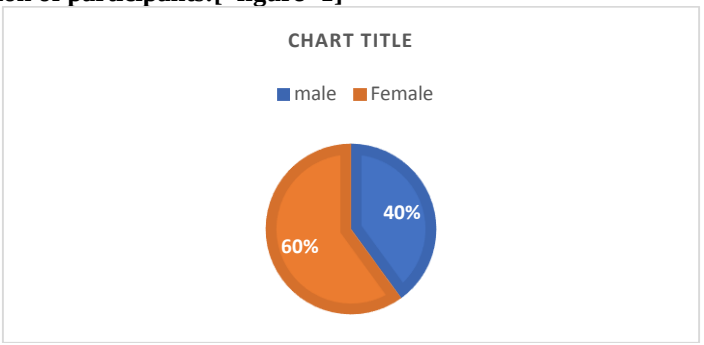
II. METHODOLOGY

***Materials and Methods*:**

For the present study, approval of the Institutional Ethics Committee, Durgabai Deshmukh Hospital (Registration No: ECR/477/Inst/AP/2013/RR-20) was taken. This prospective study was conducted for six months in the Department of Gynaecology, Durgabai Deshmukh Hospital, a 300 bedded multi-specialty hospital. Paired-T test was as a statistical tool to analyze the effectiveness of Amiodarone administered along with Beta blocker in ventricular tachycardia.[6]

III. RESULTS:

Gender wise distribution of participants:[figure -1]



AMIODARONE ADMINISTRATION BASED ON DOSAGE FORM (TABLE -1)

DRUG	ORAL	IV	TOTAL PATIENTS
AMIODARONE	12	18	30

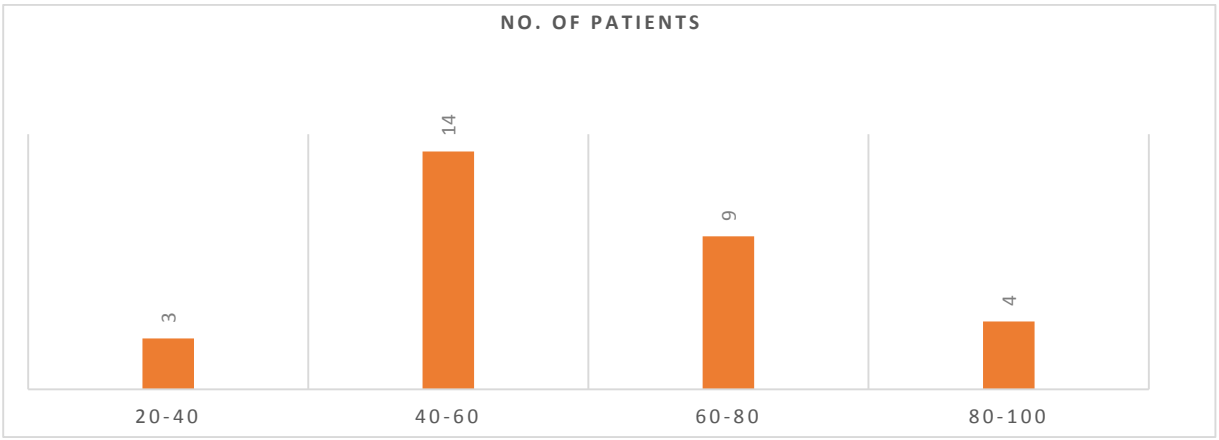
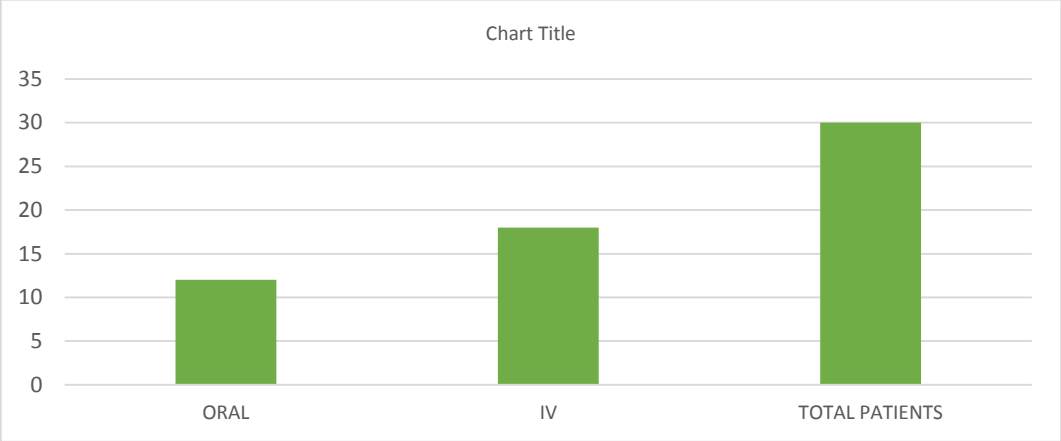


TABLE 2- Age-wise distribution of participants

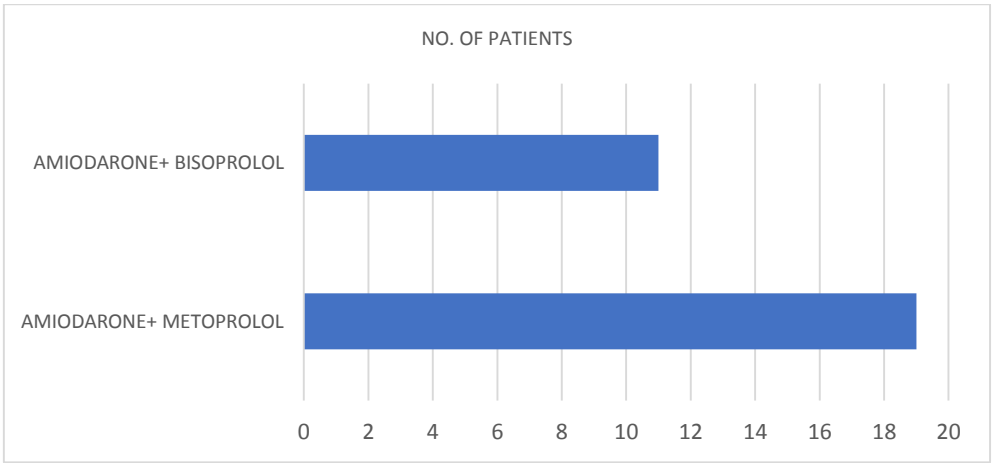
Age group	No. of patients
20-40	13
40-60	14
60-80	9
80-100	4

Figure -2



Comparison between Amiodarone administration with metoprolol and bisoprolol , TABLE -3

DRUG	NO. OF PATIENTS
Amiodarone + Metoprolol	**19**
Amiodarone + Bisoprolol	**11**



PARAMETER	T- CALCULATED	T-CRITICAL
Systolic blood pressure (ref. table-1)	**6.15**	**2.04**
Diastolic blood pressure (ref. table-2)	**5.91**	**2.04**
Pulse rate (ref. table-3)	**8.2**	**2.04**
Respiratory rate (ref. table-4)	**4.5**	**2.04**
SPO_2 (ref. table-5)	**4.53**	**2.04**
Sodium (ref. table-6)	**12.7**	**2.04**
Potassium (ref. table-7)	**10.9**	**2.04**
SGPT (ref. table-8)	**10.99**	**2.04**
Serum creatinine (ref. table-9)	**8.25**	**2.04**

Paired T-test was done for the following parameters and results are depicted.

H_o- Safety, and efficacy of amiodarone administration along with metoprolol and bisoprolol before and after is the same.

H_1- Safety, and efficacy of amiodarone administration along with metoprolol and bisoprolol before and after are not the same.

IV. DISCUSSION :

From the above table, we can say that the T-calculated value is greater than the T-critical value and hence, we reject Hoand accept H_1.There is a significant difference present in the above parameter values taken before and after administration of Amiodarone along with beta-blockers (metoprolol, bisoprolol)**.**

V. CONCLUSION:

Based on the above observations and according to literature and the prospective observational study performed Anti arrhythmic like Amiodarone is the best drug of choice when given in combination with Beta-blockers which are administered in the form of intravenous and oral. Compared to other beta-blockers Metoprolol and Bisoprolol are frequently used with efficacy and safety for patients with Ventricular Tachycardia. There were no adverse effects seen during the course of this study. Eventually, based on all observational studies, we conclude that amiodarone along with beta-blockers is more effective and safer in treating Ventricular tachycardia From the present study, we conclude that amiodarone along with beta-blockers is more effective and safer in treating Ventricular tachycardia

***CONFLICT OF INTEREST*:**

The authors have no conflicts of interest regarding this investigation**.**

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[8]. Article Author; Brian Cohangan , Article editor : Dov Brandis , Updated ; 8/11/2021 , Torsades de pointes