

Table 1

Baseline characteristics	n = 33
Age (mean ± SD), years	39 ± 12
Sex (M:F)	20:13
Valve at mitral position	28
Valve at aortic position	8
Time duration since valve replacement (months, range)	34 (4–240)
LA diameter in mm (mean ± SD)	44 ± 16
Patients with AF [n (%)]	24 (72%)
LVEF (%)	58 ± 6%
Compliance to OAC, n (%)	6 (25%)

left ventricular ejection fraction (LVEF), valve prosthesis type and position of valve, chordal preservation surgery, atrial fibrillation (AF), left atrial (LA) size] as predictor to PHVT and the outcome of management by thrombolysis. In the current study, we intend to evaluate whether AF is an independent predictor of PHVT.

Methods: We prospectively collected data of all patients presenting to our out-patient, in-patient and emergency room of department of cardiology. All baseline parameters (demographic characteristics, compliance to OAC, LVEF, valve prosthesis type and position of valve, AF and LA size) were noted and were subjected to univariate and multivariate analysis to determine their association to PHVT.

Results: Since June 2013 to June 2015, 33 patients (20 female, 13male) with PHVT were admitted to our department. Baseline characteristics are shown in Table 1.

Mean age of patients presenting with PHVT was 39 ± 12 years, with females accounting for 2/3rd of the all PHVT patients. A total of 36 valves were thrombosed in 33 patients. Mitral valve was affected in 28 patients and 8 patients had thrombosis of aortic valve. Mean time duration after valve replacement till presentation with PHVT was 4 (range 4–240) months. Mean LA diameter at was 44 ± 16 mm. 24 (72%) of patients were in AF and overall the LVEF was almost normal in all patients. Only 9 (25%) of patients were compliant to the OAC prescribed.

Overall the most predominant cause of PHVT is non-compliance to OAC.

Conclusion: Because of the inadequate number of patients with PHVT, multivariate analysis could not be done to determine the significance of association of risk factors to PHVT. Overall non-compliance to OAC appears to be the most important cause of PHVT. AF in association is found in 72% of patients.

Common problems of a common arrhythmia – Atrial fibrillation



R. Mukul*, R. Roopa, S. Anand, L. Sumithra, Chandra Subash

Department of Cardiology, Manipal Hospital, Bangalore, India

Background: Stroke is a serious complication of atrial fibrillation (AF) and oral anticoagulants are effective in reducing the risk of stroke. New oral anticoagulants (NOAC's) are available now as alternatives.

Aims: (1) To study the clinical profile of patients with AF and attendant problems, (2) to assess the risk of stroke and bleeding in patients with non valvar AF (NVAf) and (3) to study the frequency of usage of vitamin K antagonists (VKA) and NOACs and their attendant problems.

Methods: All consecutively hospitalized patients with AF and those patients with AF seen in cardiology OPD were included in this observational prospective registry study. CHA2DS2-VASc and

HASBLED scores were applied in patients with NVAf. Renal function was assessed by Cockcroft–Gault formula.

Results: Of 106 patients, 56 (52.83%) were males and 50 (47.17%) were females. The mean age was 64.67 years. 31 (29.24%) patients had valvar AF, and 75 (70.76%) NVAf. 16 (15.09%) patients had stroke. 51 (48.11%) had hypertension, 23 (21.69%) had diabetes, 21 (19.81%) had coronary artery disease, 5 (4.71%) had cardiomyopathy, 18 (16.9%) were detected to have thyroid dysfunction and 7 (6.6%) chronic kidney disease.

The mean CHA2DS2-VASc score was 3.54, and HASBLED score was 2.11. Of 31 patients of valvar AF, 27 received VKA and 4 patients took no anticoagulants. Out of 75 patients with NVAf, 17 received NOAC, 29 were on VKA (26 refused NOAC due to cost constraint and 3 had creatinine clearance <30 ml/min) and 29 on antiplatelets (CHADS score 1 or less in 5 and 24 unwilling to take anticoagulant). 3 switched to NOAC from VKA, and 1 opted to switch from NOAC to VKA. Of 56 patients who were on VKA, 4 had hemorrhagic stroke. 6 patients died. No significant adverse effects were reported with NOACs except one patient developed hematuria. VKA were associated with increase risk of hemorrhagic stroke.

Conclusion:

1. NVAf was more frequent than valvar AF.
2. Antiplatelets are still being used inappropriately.
3. NOACs are attractive alternatives to VKA, but are expensive.

Ventricular tachycardia in viral myocarditis managed by catheter ablation: A rare case report



A. Amale, S. Dora*, N. Gautam*, R. Panda*

Asian Heart Institute & Research Centre Pvt. Ltd, Mumbai, India

The combination of ventricular tachycardia (VT) and severe left ventricular dysfunction presents a serious challenge in management of acute fulminant myocarditis (AFM). We present a case of a 52-year-old male with AFM, who presented with hypotension and incessant VT not responsive to pharmacological therapy. He underwent successful catheter ablation.

Introduction: Myocarditis is clinically and pathologically defined as “inflammation of the myocardium”. Clinical presentations of the disease range from nonspecific systemic symptoms (fever, myalgias, palpitations, or exertional dyspnea) to fulminant hemodynamic collapse and sudden death. Furthermore, it has been identified as a cause of dilated cardiomyopathy in 9% of cases in a large prospective series. Endomyocardial biopsy and autopsy findings have clearly demonstrated that myocarditis represents a frequent cause of life-threatening ventricular arrhythmias and sudden death.

Electroanatomic mapping allows operators to record intracardiac electrical activation in relation to anatomic location in a cardiac chamber of interest, even during arrhythmia mapping. Although use of electrophysiological ablation in AFM has not been documented widely, in exceptional cases where VT is not responding to conventional treatment ablation remains a useful alternative.

Case: A 52-year-old male known case of hypertension and diabetes mellitus since last 10 years had a history of traveling in last 15 days following which he started experiencing fever and breathlessness. Further, he developed swelling over his feet, abdomen and face for which he admitted in a private hospital where he was managed medically. But his condition went on deteriorating and he had incessant VT for which he was given around 20 DC shock and was intubation and IABP was inserted. 2D Echo was done which showed global LV hypokinesia with ejection fraction of 25–30%. He was diagnosed to be suffering from viral myocarditis and was

started on cardarone infusion and other supportive measures. But his liver function went abnormal and so he was put on xylocard infusion. But incessant VT continued and he was shifted to our hospital by air ambulance. In spite of trying all pharmacological therapy his VT continued.

So electrophysiological study was planned under CARTO mapping system which showed ventricular tachyarrhythmia was automatic in nature arising from left basal posterior region. Ablation was performed at 40 W power and 45° temperature at and around the area of VT origin. Post ablation VT was still inducible but its frequency had come down significantly and the rate was considerably lower. The next day patient was found to have only PVC's and subsequently he remained in sinus rhythm. His condition further improved and he was discharged after 7 days. A follow up after 3 months with Holter report showed no PVC's or VT and 2D echo also showed improved ejection fraction to 50%.

Discussion: The clinical spectrum of viral cardiomyopathy can be classified as fulminant, acute, or chronic. Viremia is followed by cardiomyocyte infection. The clinical presentation of viral myocarditis varies from nonspecific electrocardiographic abnormalities and mild viral illness to acute hemodynamic compromise or sudden cardiac death. The initial evaluation should include electrocardiography, echocardiography, and often contrast-enhanced cardiac MRI. Patients with presentations suggestive of ischemia should usually undergo coronary angiography. Patients with VT, hemodynamic instability, or high-grade atrioventricular block should usually undergo endomyocardial biopsy. All patients should receive standard heart failure care as outlined in the ACC/AHA/ESC, and Heart Failure Society of America guidelines. Ongoing trials of antiviral treatment such as the use of interferon beta may lead to the use of specific antiviral treatment in the future.

Very few reports are available where successful transcatheter cure of VT in myocarditis induced dilated cardiomyopathy are available. The VT and left ventricular dysfunction resolved with successful radiofrequency ablation. incessant VT can cause reversible left ventricular dysfunction. The diagnosis should be suspected in patients who present with incessant tachycardia and apparent idiopathic cardiomyopathy. Successful radiofrequency ablation can resolve the tachycardia and the left ventricular dysfunction.

Conclusion: Suspected viral myocarditis is an important cause of cardiomyopathy that presents diagnostic and therapeutic challenges. The initial evaluation should include electrocardiography, echocardiography, and often contrast-enhanced cardiac MRI. The

indication for ablation in monomorphic ventricular premature beats is considered exceptional. The recommendation for ablation in repetitive VT is contemplated in patients with symptoms and those who fail to respond to or cannot tolerate drug therapy; tachycardia-induced cardiomyopathy is not mentioned. Considering that ablation in these tachycardia patients has a success rate of nearly 80% and a complication rate similar to that of other more common origins, the indication for this procedure should be assessed when there is frequent monomorphic ventricular arrhythmia (premature beats, whether isolated or associated with repetitive tachycardia) together with apparently idiopathic left-ventricular dysfunction.

A single center experience of electrical VT storm



M. Sadiq Azam, T.N.C. Padmanabhan, P.A. Jiwani, S.V. Srinath, B. BhaskarRao, R.K. Jain, B. Hygriv Rao

Krishna Institute of Medical Sciences, Hyderabad, India

Background: Electrical storm (ES) is a life-threatening emergency with an incidence of 10–28% and in-hospital mortality of 60–70%. We report a single center experience of 8 patients with ES.

Methods: All patients presenting with ES between January 2012 and August 2015 were prospectively enrolled. Clinical profiles and in-hospital outcomes were tabulated. All those discharged were followed up with review of device data logs.

Results: 8 patients (7 male and 1 female) presented with recurrent ICD shocks ($n = 4$) or VT/VF ($n = 4$) (Table 1). The mean age and LVEF of the cohort was 57.67 ± 7.67 years and $34.79 \pm 4.17\%$ respectively. 6 patients were electively mechanically ventilated and one additionally required IABP. All received amiodarone, lignocaine and maximally tolerated dose of beta blockers. Phenytoin and mexitiline were given in 1 patient each. 1 patient was found to have thyrotoxicosis and settled with anti-thyroid drugs. 2 patients underwent stellate ganglionectomy and 7 patients underwent VT ablation by 3D mapping. All patients had hemodynamically unstable VTs of multiple morphologies (3.17 ± 1.6). Strategies for RFA included substrate modification targeting abnormal electrograms in scar area ($n = 8$), isolation of LV aneurysm ($n = 1$) and

Table 1

Patient #	Age (years)	Sex	LVEF (%)	Presentation	No of ICD shocks in a day	No of DC shocks delivered in ICCU	Rx: RFA/Stellate/medical only	Clinical substrate	In-hospital outcome	Follow up (months)	ICD shock and VT episodes
1	61	M	30	Recurrent ICD shocks	7	12	RFA	ICM	No VT	36	0-0
2	57	M	35	Recurrent VT	–	22	RFA	NICM	No VT	30	0-0
3	65	M	25	Recurrent VT	–	25	RFA	ICM	No VT	29	0-0
4	59	M	30	Recurrent ICD shocks followed by incessant VT	26	45	RFA + Stellate	ICM	No VT	24	0-0
5	54	M	35	Incessant VT/VF	–	98	RFA + Stellate	Early post CABG (4 weeks)	Expired	N/A	N/A
6	69	M	30	Recurrent VT	–	30	RFA	ICM	No VT	8	0-0
7	46	F	35	Recurrent ICD shocks	5	0	Medical	ICM	No VT	7	0-0
8	68	M	25	Recurrent ICD shocks	4	0	RFA	ICM	No VT	4	0-0

ICM: ischemic cardiomyopathy; NICU: non-ischemic cardiomyopathy; RFA: radiofrequency ablation.