Clinical Medicine and Health Research Journal (CMHRJ)
Volume 03, Issue 04, July - August, 2023
Page No. 505-512,

Research Article

Sustained Ventricular Tachycardia in Acute Coronary Syndrome with ST Segment Elevation: Incidence, Predictive Factors and Related Mortality.

Hanane ZOUZOU

Department of Medicine, Professor in cardiology, Batna 2 university Algeria, Road 2 Mohamed Bellarine Constantine 25000 Algeria

Received: 08 July, 2023 Accepted: 12 August, 2023 Published: 18 August 2023

Abstract:

Background: Sustained Ventricular Tachycardia is the most serious complication; in acute coronary syndrome with ST segment elevation, several international studies have reported incidence and predictive factors of severe ventricular arrhythmias, without identifying sustained ventricular tachycardia separately; also, its epidemiological data is lacking in Algeria.

Aims: The main objective of our study is the determination of the frequency of sustained ventricular tachycardia in acute coronary syndrome with ST segment elevation, the secondary objective was the analysis of predictive factors of this arrhythmia, and related mortality.

Methods and materials: In this prospective study, conducted in the cardiology department of Hussein Dey hospital (Algiers-Algeria), 467 patients with acute coronary syndrome with elevated ST segment (87 women and 380 men) were enrolled between 28 February 2014 and 16 July 2015. The average age is 60 ± 13 years; at admission, a Holter recorder was attached for continuous ECG monitoring during 48 hours

Kruskal's ANNOVA or H tests were used for comparison of quantitative variables, $\chi 2$ test or Fisher's exact test, were used for qualitative variables, all tests were performed with 1st species risk of 5%.

Results: The frequency of Sustained Ventricular Tachycardia is 3.6 % (17 patients), CI 95%: [1.9%-5.3%], multivariate analysis identified the following independent predictors: low diastolic blood pressure, severe coronary artery lesions, Elevated high sensitive troponin concentrations more than 5ng/ml.

The risk of mortality expressed by Hazard Ration (HR) is 6. (CI95%: [1.7-21], p = 0.005); the predictors of mortality are: occurrence of ventricular fibrillation and low diastolic blood pressure.

Conclusion: Sustained Ventricular tachycardia is the most serious complication during acute coronary syndrome with elevated ST segment, its predictive factors according to our study are: low diastolic blood pressure, severe coronary lesions, Elevated high sensitive troponin concentrations more than 5ng/ml, its occurrence increases the risk of hospital mortality.

Keywords: Acute Coronary Syndrome, Sustained Ventricular Tachycardia, Severe Coronary Artery Lesions.

Introduction:

Sustained ventricular tachycardia (SVT) defined as ventricular tachycardia lasting at least 30 seconds, is one of the most serious ventricular arrhythmias, rarely observed early in acute coronary syndrome with ST segment elevation, because of its frequent degeneration into ventricular fibrillation.

Ventricular tachycardia may induce hemodynamic instability, and promotes the onset of cardiogenic shock during hospitalization.

Its mechanisms are complex and multifactorial; several electrophysiological modifications occur just after coronary artery occlusion, and lead to reentry phenomena, abnormal automatism, and triggered activity.

Several international studies have reported incidence and predictive factors of severe ventricular arrhythmias, without identifying sustained ventricular tachycardia separately; also its epidemiological data is lacking in Algeria.

The main objective of our study is to determine the frequency of sustained ventricular tachycardia in acute coronary syndrome with ST segment elevation, during the first 48 hours of hospitalization, while the secondary objective is the analysis of its predictive factors and the related mortality.

Methods and materials:

We prospectively studied a group of 467 consecutive patients (380 men and 87 women; mean age 60 ± 13 years) who presented acute coronary syndrome with ST segment elevation and admitted in cardiology department of Hussein-Dey hospital (Algiers, Algeria), between 28th February 2014 and 16th August 2015.

At emergency department admission, an ECG Holter recorder was attached for continuous ECG monitoring during 48 hours, the 17-leads surface ECG recorded at admission and repeated during hospitalization, Doppler Echocardiography, coronary

angiography, and biological assessment were performed in the majority of patients.

The most important rhythm and conduction disorders were identified, the patients with the same type of disorder are grouped together, and the name assigned to each group is that of the disorder that characterizes it; there are overlaps between the groups, so that several disorders may exist in the same patient.

The constitution of each group of the rhythm disorder implies the constitution of the opposite group without the corresponding disorder, the latter group is used for the comparative study; each group is therefore described and then compared to the corresponding opposite group.

In this sub study, the group of patients with sustained ventricular tachycardia was compared to the rest of patients without sustained ventricular tachycardia.

Statistical analysis:

Data are presented as mean ± SD, median, or frequency (percentage) where appropriate. Continuous variables were compared using the ANNOVA test, or H Kruskal Wallis test. $\chi 2$ tests and Fisher's exact test were performed to distinguish differences between categorical variables. Statistical significance was defined as $p < 0.05$. In this first step, we used EPI-info version 6.0. A multivariate Binary regression was performed to determine the predictor factors of arrhythmias, and Cox regression was performed to identify the predictor factors of mortality.

The magnitude of the relationship between sustained ventricular tachycardia and their predictive factors is estimated by the Cramer V coefficient, a coefficient lower than 0.2 is in favor of a weak link, between 0.2 and 0.5: moderate link, greater than 0.5: strong link.

The statistical analysis was performed using SPSS Statistics (release 17).

Results

Incidence:

The characteristics of the 467 patients included in our study are shown in Table 1; seventeen patients had presented sustained ventricular tachycardia at admission or during hospitalization, so its frequency in this present study is 3.6 % (17 patients), CI 95% [1.9%-5.3%].

This group of patients included 2 women and 15 men. The mean age was 59.70 ± 12 years; the extreme age was 37 and 74 years. Six patients had presented SVT at admission, and eleven patients had SVT during their hospitalization.

The rate of SVT varied between 110 and 300 beats/min, the mean rate was 169 beats/min;

Monomorphic ventricular tachycardia with aspect of left bundle branch block was present in 15 patients, and with aspect of right bundle branch block in 2 patients.

Cardiovascular risk factors, clinical characteristics, medical history, treatment and evolution are shown in Table 1.

The Surface ECG had shown, anterior ACS in three patients, circumferential in two patients, inferior in five patients, right ventricular in one patient.

The mean heart rate at admission was 91.52 ± 30.59 beats/min, the mean PR interval was 143.33 ± 29.19 msec, the mean duration of the QRS complex was 80 ± 21.21 msec, the mean amplitude of the ST segment elevation was 4.41 ± 2.62 mm, the mean amplitude of the ST segment depression was 1.58 ± 3.06 mm, the mean amplitude of the T wave was 7.76 ± 3.27 mm and the mean corrected QT was 439.86 ± 46.28 msec.

Five patients had persistence of the segment ST elevation during hospitalization.

Table 1: Characteristics of the study patients.

	Patients with SVT (n = 17)	Patients without SVT (n = 450)	P-value	
Mean age	59.706	60.198	0.874	NS
Females	2	85	0.672	NS
Early consultation (within 6 hours)	12	331	0.455	NS
Hypertension	5/17	204/450	0.294	NS
Diabetes	7/27	149/450	0.667	NS
Current smoking	10/17	225/450	0.640	NS
hyperlipidemia	3/17	64/447	0.455	NS
GRACE score ≥ 155	**13/17**	**154/449**	**0.001**	**S**
Cardiogenic shock	**5/17**	**13/450**	**0.000**	**S**
Left ventricular heart failure	**6/17**	**57/450**	**0.017**	**S**
Right ventricular heart failure	1/17	10/450	0.337	NS
Persistence of chest pain	**4/17**	**24/450**	**0.014**	**S**
Mean SBP	**91.235**	**131.867**	**0.000**	**S**
SBP ≤100 mmHg	**8/17**	**54/450**	**0.000**	**S**
Mean DBP	**56.000**	**78.311**	**0.000**	**S**
DBP ≤ 60 mmHg	**10/17**	**72/450**	**0.000**	**S**

Hospital mortality (first 48 hours)	**3/17**	**14/450**	**0.019**	**S**
Previous myocardial infraction	0/17	21/450	0.451	NS
Electrocardiogram				
Right ventricular ACS	1/17	41/450	0.537	NS
Circumferential ACS	2/17	22/450	0.215	NS
Anterior ACS	3/17	41/450	0.209	NS
Inferior ACS	3/17	79/450	0.173	NS
QTc ≥ 440 msec	**10/17**	**121/450**	**0.006**	**S**
Persistence of ST segment elevation	**5/17**	**25/448**	**0.002**	**S**
Other associated arrhythmias				
Polymorphic PVC	**5/14**	**46/434**	**0.014**	**S**
PVC with R on T phenomenon	**3/14**	**15/434**	**0.015**	**S**
Medication before ACS				
Beta blockers	2/17	34/449	0.383	NS
ARB	2/17	65/449	0.547	NS
ACE-inhibitor	3/17	32/449	0.3305	NS
Lipid-lowering drugs	2/17	31/449	0.2970	NS
Antiplatelet agents	4/17	36/449	0.048	S
Treatment at admission				
Thrombolysis	15/17	391/450	0.612	NS
Primary or rescue percutaneous coronary intervention	0/11	14/318	0.615	NS
Beta blockers	6/17	180/450	0.891	NS
ACE-inhibitor	7/17	254/450	0.319	NS
Echocardiography				
Ejection fraction of left ventricle < 40	**5/14**	**58/433**	**0.034**	**S**
Mean Left ventricular diastolic diameter	**59.643**	**53.954**	**0.032**	**S**
Left ventricular diastolic diameter ≥ 59 mm	**8/14**	**92/433**	**0.004**	**S**
Coronary angiography				
Severe coronary artery lesions	**8/11**	**94/318**	**0.004**	**S**
Left main coronary artery severe lesion	0/11	12/318	0.660	NS
Left anterior descending artery lesion	9/11	200/318	0.168	NS
Left circumflex coronary artery lesion	4/11	114/318	0.603	NS
Right coronary artery lesion	**9/11**	**130/380**	**0.008**	**S**
Two-vessel coronary artery disease	**8/11**	**120/318**	**0.022**	**S**
Multi-vessel coronary artery disease	4/11	57/318	0.126	NS
TIMI flow grade 0	2/11	63/318	0.625	NS

ACS: Acute Coronary Syndrome, ACE inhibitors: Angiotensin-converting enzyme inhibitors ARB: Angiotensin receptor-blocker, DBP Diastolic blood pressure, LBBB: left bundle brunch block, PVC: Premature ventricular complexes, QTc: Corrected QT interval, RBBB: Right bundle brunch block, SBP: Systolic blood pressure.

Treatment at admission and during hospitalization: Metalyse (Tenecteplase) as fibrinolytics treatment were administered in 15 patients (88.23 %), 6 patients had presented SVT at admission before any therapy, 9 patients had presented SVT after thrombolysis. (Figure 1)

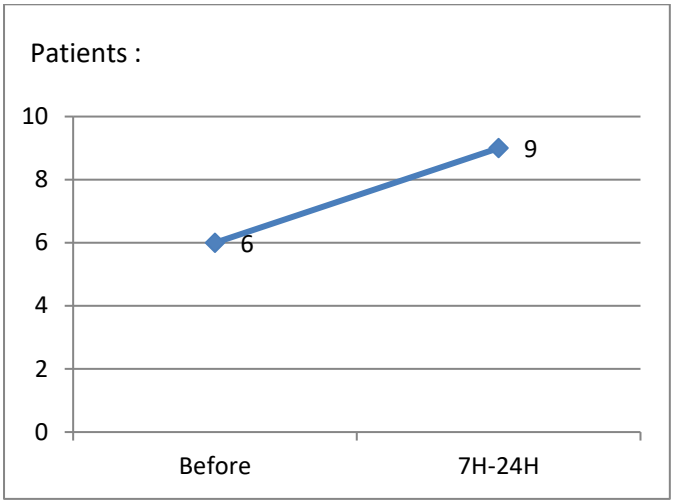

Figure 1: Sustained Ventricular Tachycardia onset delay as a Function of fibrinolytics treatment

Aspirin, Clopidogrel and Anticoagulants were administered in 17 patients, beta blockers in 6 patients (35.29 %), ACE inhibitors in 7 patients (41.17 %), sympathomimetic agents in 4 patients (23.52 %), diuretics in 2 patients (11.76 %), external electric shock in 13 patients (76.47 %), Amiodarone in 8 patients (47.05 %), Magnesium and Potassium supplementation at admission in 12 patients 70.58 %), Atropine in 1 patient (5.88 %), Insulin in 7 patients (41.17 %).

Thrombolysis failure: the persistence of chest pain after thrombolysis was observed in 3 patients, the persistence of ST segment elevation in 4 patients; for patients who had experienced SVT during hospitalization, the persistence of chest pain and ST segment elevation was observed in 3 patients.

Doppler echocardiography was performed in 14 patients, the left ventricular fraction less than 40 % was found in 5 patients (35.71%), left ventricular hypertrophy in 2 patients (14.28%), the mean area of the left atrium: 18.64 ± 5.31 cm², that of the right atrium: 12.84 ± 5.16 cm², the mean diastolic diameter of the left ventricle: 59.64 ± 10.28 mm, diastolic diameter of left ventricle above or equal 59 mm in 8 patients (57.14 %), the mean diastolic diameter of the right ventricle was 26.27±3.19 mm, systolic pulmonary blood pressure: 28.66 ± 7.77 mm Hg, wall akinesia in 10 patients (71.42%), apical thrombus in 1 patient (7.14%), and significant mitral insufficiency in 2 patients (14.28%).

Holter ECG was performed in 14 patients; this exam had participated in the recording of SVT, and also showed its duration, and frequency. (Figure 2)

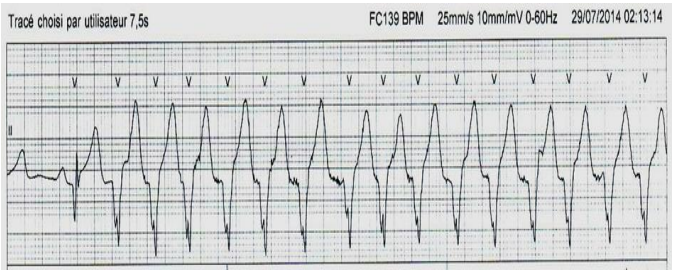

Figure 2: Initiation of Sustained Ventricular Tachycardia

Several arrhythmias were associated with SVT, ventricular fibrillation had occurred in 10 patients (58.82%), non-sustained ventricular tachycardia (NSVT) in 7 patients (41.17%), atrial fibrillation in 2 patients 11 %), complete left bundle branch block in 1 patients (5.8%) and complete right bundle branch block in 3 patients (17.64 %), bursts of atrial premature beats were found in 7 patients (4117 %), bursts of ventricular premature beats in 6 patients (35.29%), accelerated idioventricular rhythm in 2 patients (11.76 %), polymorphic ventricular premature beats in 5 patients (29.41 %), PVC with R on T phenomenon in 3 patients (17.64%).

Evolution and complications: stroke in 1 patient and aneurysm in 1 patient.

Coronary angiography was performed in 11 patients, severe coronary artery lesions were found in 8 patients (72.72%), severe stenosis of the left anterior descending artery in 9 patients (81.81%), circumflex artery in 4 patients (36.36%), right coronary artery in 9 patients (81.81%), two-vessel coronary artery lesions in 8 patients (72.72%), three vessel coronary artery lesions in 4 patients (36.36%), TIMI flow grade 0 in 2 patients (18.18%).

Mortality: three patients died during the first 48 hours of their hospitalization; 2 patients died during the first 2 hours and one patient after 12 hours.

Biology: the average blood glucose: 2.31±1.27 g/l, blood glucose level above or equal 2g/l in 9 patients (52.94%), average serum potassium 3.98 ± 0.64 mmol/l, average blood urea: 0.42± 0.24 g/l, blood creatinine: 14.56 ± 10.43 mg/l; High-Sensitivity Troponin (hs-Trop) above or equal 5 ng/ml in 8 patients (66.66%).

Predictive factors : According to the univariate study, several variables had a statistically significant association with the occurrence of SVT: Cardiogenic shock, left heart failure, persistence of chest pain, GRACE Score ≥ 155, left ventricular ejection fraction < 40 %, Mean diastolic diameter of the left ventricle ≥ 59 mm, mean corrected QT interval ≥ 440 mse Persistence of ST segment elevation after thrombolysis, Mean systolic blood pressure ≤ 100 mm Hg, Mean diastolic blood pressure ≤ 60 mm Hg, severe coronary artery lesions, right coronary artery stenosis two-vessel coronary artery lesions, blood glucose level above or equal 2g/l, High-Sensitivity Troponin (hs-Trop) above or equal 5 ng/ml etc. (Table 2)

But after the multivariate analysis using binary logistic regression, three predictive factors were identified: diastolic blood pressure ≤ 60 mm Hg, severe coronary artery lesions, High-Sensitivity Troponin (hs-Trop) ≥5 ng/ml. (Table 3) (Figure 3)

Table 2: Univariate study: variables associated with sustained ventricular tachycardia (SVT)			
Variables	RR	CI 95%	P
Cardiogenic shock	10.98	4.36-27.67	0.0001
Left heart failure	3.48	1.33-9.08	0.01
Mean systolic blood pressure ≤ 100 mmHg	5.81	2.33-14.48	0.0005
Mean diastolic blood pressure ≤ 60 mmHg	6.71	2.63-17.10	0.0001
Persistence of Chet pain	4.82	1.68-13.03	0.01
GRACE Score ≥ 155	5.89	1.95-17.77	0.0008
Mean systolic blood pressure ≤ 100 mm Hg	3.84	1.84-8.01	0.001
Mean diastolic blood pressure ≤ 60 mm Hg	3.23	1.56-6.70	0.002
Polymorphic premature ventricular beat	4.32	1.51-12.40	0.01
PVC with R on T phenomenon	6.52	1.99-21.34	0.01
Persistence of ST segment elevation	6.04	2.28-16.03	0.002
Mean left ventricular ejection fraction < 40 %	3.39	1.17-9.78	0.03
Mean diastolic diameter of the left ventricle ≥ 59 mm	4.63	1.64-13.02	0.004
Severe coronary artery lesions	5.93	1.61-21.91	0.004
Right coronary artery stenosis	6.12	1.34-27.88	0.008
Two-vessel coronary artery lesions	4.19	1.13-15.49	0.02
High-Sensitivity Troponin (hs-Trop) ≥ 5 ng/ml	3.26	1-10.64	0.04
blood glucose level ≥ 2g/l	2.98	1.17-7.55	0.02
Antiplatelet agents (ongoing medication)	3.28	1.12-9.58	0.04
Persistence of ST segment elevation after thrombolysis	5.08	1.73-14.89	0.01
Persistence of chest pain after thrombolysis in patients who had experienced SVT during hospitalization	6.26	1.72-22.82	0.02
Persistence of ST segment elevation after thrombolysis in patients who had experienced VF during hospitalization	5.98	1.64-21.85	0.023

Table 3: Predictive factors of sustained ventricular tachycardia			
Predictive factors	OR	CI 95%	P
Diastolic blood pressure ≤ 60 mm Hg	8.923	2.0-39.10	0.004
Severe coronary artery lesions	8.544	1.951-37.421	0.004
High-Sensitivity Troponin (hs-Trop) ≥ 5 ng/ml	5.831	1.342-25.338	0.019

The magnitude of the relationship between SVT and low diastolic blood pressure is moderate, the Cramer V coefficient greater than 0.2, but low for the two others, the Cramer V coefficient does not exceed 0.2. (Table 4)

Table 4: Magnitude of the relationship between Sustained Ventricular Tachycardia and its predictive factors		
Predictive factors of sustained ventricular tachycardia	Cramer V coefficient	P
Diastolic blood pressure ≤ 60 mm Hg	0.211	0.000
Severe coronary artery lesions	0.101	0.038
High-Sensitivity Troponin (hs-Trop) ≥ 5 ng/ml	0.168	0.002

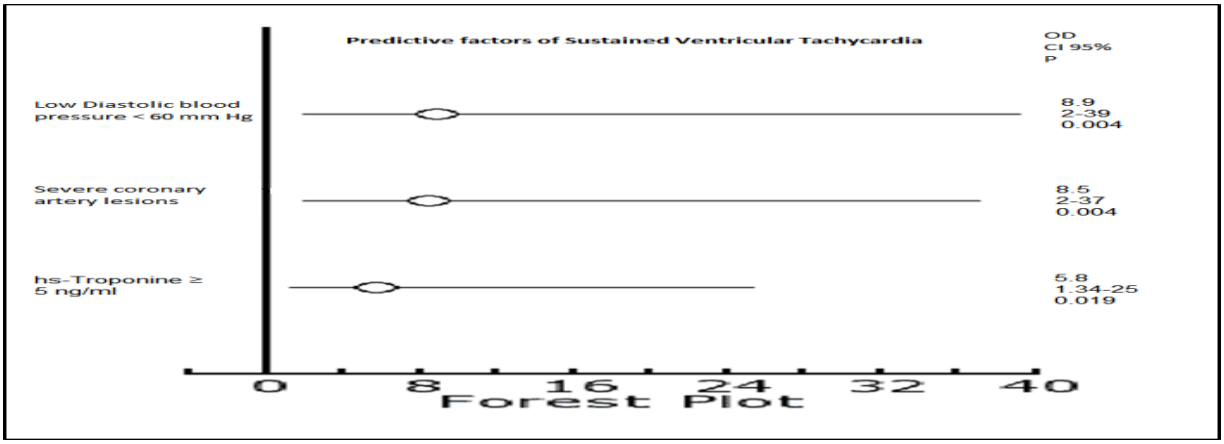

Figure 3: Predictive factors of Sustained Ventricular Tachycardia

Mortality:

Hospital mortality (first 48 hours), in the SVT group is 17.64% while it does not exceed 3.11% in the group without SVT, p = 0.019. (HR at 6, CI 95% [1.7-21], p = 0.005. (Figure 4)

Cox regression was used for univariate and multivariate studies of mortality predictors.

According to the univariate study, some factors have a statistically significant association with the occurrence of mortality in the SVT group. (Table 5)

According to multivariate analysis, two predictive factors of mortality were identified: low diastolic blood pressure and occurrence of ventricular fibrillation. (Table 6)

The magnitude of the relationship between mortality and its predictive factors was moderate in the SVT group, but not significant. (Table 7)

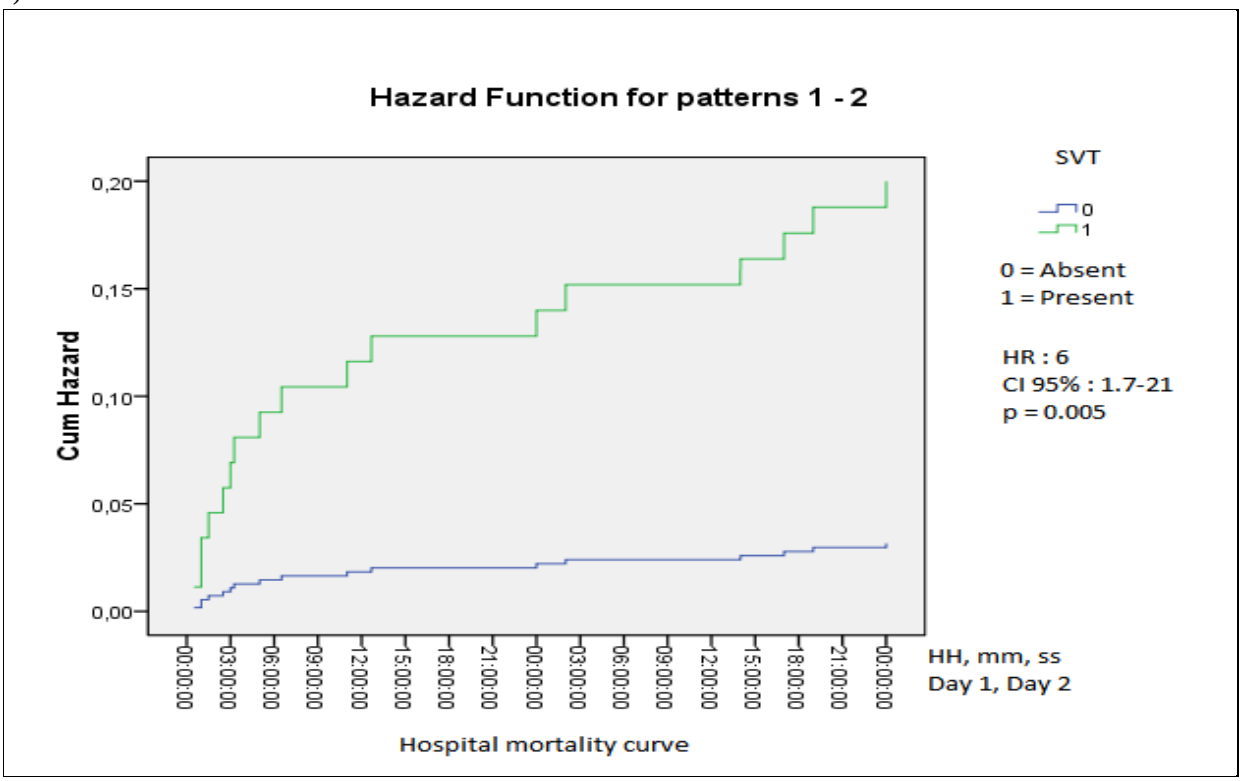

Figure 4: Hospital mortality curve (48h) in Sustained Ventricular Tachycardia (SVT) group versus group without SVT

Table 5: Univariate analysis, Factors related to mortality in group of Sustained Ventricular Tachycardia			
Factors	**OR**	**IC95%**	**P**
Feminine sex	4.5	1.7-12	0.002
Age ≥ 65 years	8.5	2.4-29.8	0.001
Right heart failure	65	23.4-181	0.000
Left heart failure	5.1	1.9-13.6	0.001
Cardiogenic shock	231	53-1003	0.000
Right ventricle acute coronary syndrome	6.1	2.2-16.7	0.000
Persistence of ST segment elevation	39.6	13.4-117.4	0.000
Persistence of chest pain	27.3	10.2-73	0.000
Diastolic blood pressure ≤ 60 mm Hg	3.28	1.1-9.1	0.023
Systolic blood pressure ≤ 100 mm Hg	8.8	3.2-24	0.000
Blood creatinine ≥ 17 mg/l	7.6	2.4-23.5	0.000
GRACE Score	6.9	1.9-24.9	0.003
Occurrence of ventricular fibrillation	12.4	4-37.8	0.000

Table 6: Predictive factors of mortality in Sustained Ventricular Tachycardia group			
Predictive factors of mortality in Sustained Ventricular Tachycardia group	**OR**	**CI95%**	**P**
Occurrence of Ventricular Fibrillation	8.8	2.9-26.9	0.000
Diastolic blood pressure ≤ 60 mm Hg	4.9	1.8-13.7	0.002

The magnitude of the relationship between mortality and its predictive factors was moderate in the SVT group, but not significant. (Table 7)

Table 7: The magnitude of the relationship between mortality and its predictive factors		
Predictive factors of mortality in Sustained Ventricular Tachycardia group	**Cramer V Coefficient**	**P**
Occurrence of Ventricular Fibrillation	0.387	0.110
Diastolic blood pressure ≤ 60 mm Hg	0.240	0.323

Discussion

Sustained ventricular tachycardia (SVT) is one of the most serious ventricular arrhythmias, rarely observed early in acute coronary syndrome with ST segment elevation, because of its frequent degeneration into ventricular fibrillation.

Sustained Ventricular Tachycardia may induce hemodynamic instability, and promotes the onset of cardiogenic shock during hospitalization.

Its mechanisms are complex and multifactorial; several electrophysiological modifications occur just after coronary artery occlusion, and lead to reentry phenomena, abnormal automatism, and triggered activity. [1]

In the literature the frequency of SVT is reported with that of Ventricular Fibrillation ; in the GRACE register, the frequency of both arrhythmias is 10%, in the Thai register: 19.4%, in the Swedish register: 7%, in the APEX-AMI study: 5.7%, in the PAMI study: 4.3%, in the Swiss study: 8.7%, and in the Saudi Arabia register: 2.45%. [2-8]

The incidence of SVT in our study was 3.6 % (17 patients), CI 95% [1.9%-5.3%]. This incidence is within the range of that reported in the literature.

According to the Thai registry, predictive factors of ventricular arrhythmias are cardiogenic shock, tobacco, and elevated troponin levels [3]

For the PAMI study, the predictors of severe ventricular arrhythmias are tobacco, TIMI flow 0, the right territory of the ACS, early consultation time, and non-administration of beta blockers early on admission [6]

In another study published in 2012, the predictive factors of severe ventricular arrhythmias are the following: tobacco, taking beta blockers, digitalis and significant left main coronary artery disease [9]

In our study, predictive factors of sustained ventricular tachycardia were studied separately.

After multivariate analysis using binary logistic regression, the following predictive factors of Sustained ventricular tachycardia are: Low diastolic blood pressure, severe coronary artery lesions, High-Sensitivity Troponin (hs-Trop) ≥ 5 ng/ml.

The low diastolic blood pressure reflects all other factors that reflect an altered hemodynamic status: cardiogenic shock, left or right ventricular failure, low systolic blood pressure, and high GRACE Score.

Severe coronary artery lesions reflect the presence of previous fibrosis and chronic ischemia which lead to constitution of arrhythmias substrate.

The high level of troponin released reflects the importance of tissue damage.

In the literature, hospital mortality related to SVT and ventricular fibrillation were regrouped together and reported as hospital mortality related to severe ventricular arrhythmias.

According to the GRACE registry, the hospital mortality rate in patients with ventricular arrhythmias is 52% while it does not exceed 1.6% in patients without rhythmic disorders. [10]

In the Thai Registry (TACSR), the hospital mortality rate in patients with ventricular arrhythmia is 48%. [3]

In the VALIANT register, sustained ventricular tachycardia and ventricular fibrillation represent one of major predictors of hospital mortality (Relative Risk: 4.18). [11]

According to the Swedish primary angioplasty register published in 2012, hospital mortality rate is 16.5% in patients with ventricular tachycardia or fibrillation, while it is 1.5% in patients without ventricular arrhythmias; in the same register, Hospital mortality rate is higher and reaches 17.6% if ventricular arrhythmia (VF/VT) occurs after angioplasty, while it is 11.3% if this arrhythmia occurs before angioplasty. [4]

In our study, hospital mortality (first 48 hours), in the SVT group is about 17.64 %, this rate is lower than that reported by the GRACE and Thai registry, but similar to that of the Swedish registry, so our results were closer to those reported in study that exclusively uses primary angioplasty, which proves that fibrinolytics are as effective as primary angioplasty in reducing mortality in patients with severe ventricular arrhythmias.

Two predictive factors of mortality were identified: low diastolic blood pressure and occurrence of ventricular fibrillation, hospital mortality is therefore linked to hemodynamic instability and its electrophysiological consequences.

Conclusion:

Sustained ventricular tachycardia (SVT) is one of the most serious ventricular arrhythmias, rarely observed early in acute coronary syndrome with ST segment elevation, because of its frequent degeneration into ventricular fibrillation.

In our study we reported SVT as a separate entity, while in the literature; it's reported in the group of severe ventricular arrhythmias.

Its predictive factors according to our study are: low diastolic blood pressure, severe coronary artery lesions and High-Sensitivity Troponin (hs-Trop) ≥ 5 ng/ml.

The occurrence of SVT increases the risk of hospital mortality, related to hemodynamic instability and its electrophysiological consequences.

To our knowledge the low diastolic blood pressure and severe coronary artery lesions as predictors of sustained Ventricular Tachycardia were reported for the first time.

Bibliography

1. A V Ghuran, A J Camm. Ischaemic heart disease presenting as arrhythmias. British Medical Bulletin 2001;

59: 193–210.
2. Steg PG, Goldberg RJ, Gore JM et al. Baseline characteristics, management practices and in-hospital outcomes of patients hospitalized with acute coronary syndromes in the Global Registry of Acute Coronary Events (GRACE). Am J Cardiol 2002; 90: 358-63.
3. Tachapong Ngarmukos, Charn Sriratanasthavorn, Buncha Sansaneevithayakul. Cardiac Arrhythmias in Thai Acute Coronary Syndrome Registry. J Med Assoc Thai 2007; 90 (Suppl 1): 58-64.
4. Patrizia Cricri, Lukas D. Trachsel, Petter Muller. Incidence and time frame of life-threatening arrhythmias in patients with ST segment elevation myocardial infarction undergoing primary percutaneous coronary intervention. Swiss Med Weekly. 2012; 142.
5. Mehta RH1, Starr AZ, Lopes RD. Incidence of and outcomes associated with ventricular tachycardia or fibrillation in patients undergoing primary percutaneous coronary intervention. JAMA. 2009 May 6;301(17):1779-89.
6. Rajendra H. Mehta, Kishore J. Harjai, Lorelei Grines. Sustained Ventricular Tachycardia or Fibrillation in the Cardiac Catheterization Laboratory Among Patients Receiving Primary Percutaneous Coronary Intervention Incidence, Predictors, and Outcomes. J Am Coll Cardiol 2004;43:1765–72
7. Hersi AS, Alhabib KF, Alfaleh HF. Incidence of ventricular arrhythmia and associated patients outcomes in hospitalized acute coronary syndrome patients in Saudi Arabia: findings from the registry of the Saudi project for assessment of acute coronary syndrome (SPACE). HMVJC Novembre 2012.
8. Renato D. Lopes, Laine E. Elliott, Harvey D. White. Antithrombotic therapy and outcomes of patients with atrial fibrillation following primary percutaneous coronary intervention: results from the APEX-AMI trial. European Heart Journal (2009) 30, 2019–2028.
9. Marina M Demidova, J Gustav Smith, Carl-Johan Höijer, Prognostic impact of early ventricular fibrillation in patients with ST-elevation myocardial infarction treated with primary PCI. European Heart Journal. Acute Cardiovasc Care. 2012 Dec; 1(4): 302–311.
10. Álvaro Avezum, Leopoldo S. Piegas, Robert J. Goldberg. Magnitude and Prognosis Associated with Ventricular Arrhythmias in Patients Hospitalized with Acute Coronary Syndromes 267 (from the GRACE Registry). December 15, 2008 Volume 102, Issue 12, Pages 1577– 1582.
11. Piccini JP1, Hranitzky PM, Kilaru R. Relation of mortality to failure to prescribe beta blockers acutely in patients with sustained ventricular tachycardia and ventricular fibrillation following acute myocardial infarction (from the VALsartan In Acute myocardial iNfarcTion trial [VALIANT] Registry). Am J Cardiol. 2008 Dec 1;102(11):1427-32.