THE FREQUENCY OF VENTRICULAR PREMATURE BEATS IN PATIENTS WITH LEFT VENTRICULAR HYPERTROPHY IN RELATION TO THE DEGREE OF THE VENTRICULAR HYPERTROPHY

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INTRODUCTION

Ventricular premature beats (VPBs) are one of the most arrthythmias in the population with or without structural heart diseases. Left ventricular hypertrophy (LVH) is one of conditions that strongly correlates with various types of arrhythmias, especially VPBs. The clinical significant of VPBs in patients with LVH depends on several factors including frequency, complexity of VPBs and associated heart diseases.

AIM OF THE WORK

The present work aimed to study the frequency of ventricular premature beats in patients with left ventricular hypertrophy in relation to the degree of the ventricular hypertrophy.

SUBJECTS AND METHODS

This study included 60 symptomatic hypertensive with left ventricular hypertrophy defined by a left ventricular mass (LVM) index >115 g/m for men or >95 g/m for women's, patients selected after echo examination in Alexandria Main University Hospital, the patients were divided into three groups according to their LVM index: group one 20 patient with mild LVH, group two 20 patient with moderate LVH and group three 20 patient with severe LVH. each patient was studied with ambulatory ECG Holter for 48 hour for frequency of VPBs and graded according to Lown grading system.

RESULTS

The studied patients, 60% of the patients were males. Age in the study population ranged from 25 to 84 years with mean age of 53.70 ± 12.38 years.

PVCs represent from the total heart rate 0.01–12.50 % with Mean 2.35 ± 2.65. There was a statistically difference between the three groups In PVCs frequency and PVCs percentage of total heart rate in 48 hr ECG Holter p value <0.001.

Regarding to Lown grading Comparing between mild and moderate groups there was a significant difference in Lown grading system, p value < 0.001, mild and severe groups there was a significant difference in Lown grading, p value < 0.001 and moderate to severe there was significant difference in Lown grading , p value < 0.001.

Table 1: Comparison between the three studied groups according to PVCs frequency and PVCs%/THR

	Total (n=60)	LVH grade			H	p
		Mild (n=20)	Moderate (n=20)	Severe (n=20)		
PVCs frequency						
Min. – Max.	45.0–30072	45.0 –7566.0	414.0–15061.0	120.0–30072.0	20.601*	<0.001*
Mean ± SD.	5032.50±5561.35	1522±2304	6542±4005	7034±7423		
Median (IQR)	3241 (521.5–8407)	292 (106–1794)	5420 (3241–9867)	4258 (2047–9890)		
Sig.bet.Grps		p_1<0.001*,p_2<0.001*,p_3=0.486				
PVCs%/THR						
Min. – Max.	0.01–12.50	0.01 – 3.0	0.20 – 12.50	0.04 – 12.50	21.106*	<0.001*
Mean ± SD.	2.35 ± 2.65	0.66 ± 0.98	3.21 ± 2.68	3.17 ± 3.02		
Median (IQR)	1.60 (0.27–3.70)	0.11 (0.05–0.89)	2.55 (1.45–4.40)	2.70 (0.85 – 4.35)		
Sig.bet.grps		p_1<0.001*,p_2<0.001*,p_3=0.717				

Table 2: Comparison between the three studied groups according to Lown grading

Lown grading	Total (n=60)		LVH grade						c^2	^{MC}p
			Mild (n=20)		Moderate (n=20)		Severe (n=20)			
	No.	%	No.	%	No.	%	No.	%		
Grade 1	15	25.0	11	55.0	1	5.0	3	15.0	43.123*	<0.001*
Grade 2	7	11.7	4	20.0	2	10.0	1	5.0		
Grade 3	9	15.0	2	10.0	7	35.0	0	0.0		
Grade 4a	10	16.7	1	5.0	8	40.0	1	5.0		
Grade 4b	18	30.0	2	10.0	2	10.0	14	70.0		
Grade 5	1	1.7	0	0.0	0	0.0	1	5.0		
Sig. bet. grps			$^{MC}p_1$=0.001*,$^{MC}p_2$<0.001*,$^{MC}p_3$<0.001*							

Table 3: Comparison between the three studied groups according to Lown grading

Lown grading	Total (n=60)		LVH grade						c^2	P
			Mild (n=20)		Moderate (n=20)		Severe (n=20)			
	No.	%	No.	%	No.	%	No.	%		
Low (Grade 1+2)	22	36.7	15	75.0	3	15.0	4	20.0	19.091*	<0.001*
High (Gr ade 3+4a+4b+5)	38	63.3	5	25.0	17	85.0	16	80.0		
Sig. bet. Grps			$^{MC}p_1$<0.001*,$^{MC}p_2$<0.001*,$^{MC}p_3$=1.000							

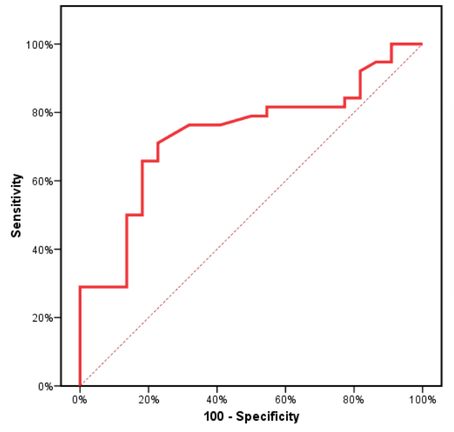

Figure: ROC curve for LVMI to discriminate high grade cases (n=38) from low grade (n=22) (for total sample)

CONCLUSION

Our results showed that Frequency of ventricular premature beats in patients with left ventricular hypertrophy was significantly associated with the degree of the ventricular hypertrophy that increasing in LVMI is associated more frequent ventricular arrythymias.

Also we found association between PVCs complexity and the degree of LVH, graded by Lown grading system.

This of one of several studies that were done the relation between LVH and arrhythmias in general and PVCs specially but further studies should by done on this topic with larger sample and more durations for observation .

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