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Role of Anger in the Development of Left Ventricular Hypertrophy.

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ABSTRACT

A descriptive study has been carried out to assess the role of anger in the development of left ventricular hypertrophy among 100 patients admitted in Cardiac Centre, with the specific objectives of assessing the Anger and left ventricular hypertrophy, Identification of the relationship between Anger and left ventricular mass, finding the association of Anger with left ventricular hypertrophy and finding the association of Anger and left ventricular hypertrophy with Socio-Demographic Characteristics. Tools were socio-demographic proforma and Novaco Anger inventory –short form. The major findings of the study shows that 52% of the population had no left ventricular hypertrophy, 48% had left ventricular hypertrophy, 51% had Moderate Anger, 30% had Severe Anger and 19% had Mild Anger, the anger and left ventricular mass shows excludable minimal positive correlation, the association of age, sex and occupation with left ventricular hypertrophy is highly significant.

Keywords: Anger**,** left ventricular hypertrophy.

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INTRODUCTION

Cardio Vascular Diseases (CVD) are the number one cause of death globally [1]. Cardiovascular disease (CVD) currently accounts for nearly half of non communicable diseases (NCDs). NCDs have overtaken communicable diseases as the world's major disease burden. CVD account for 17.3 million deaths per year, a number that is expected to grow to >23.6 million by 2030 [2]. On an average 110 people die of heart disease in Kerala every day. It can be surmised that at least 38,000 people die of heart attack in Kerala every year, while about 1.5 lakh people develop heart disease in Kerala each year [3].

Anger is the strong feeling you get when you think someone has treated you badly or unfairly, that makes you want to hurt them or shout at them [4]. One study of 1,305 men with an average age of 62 revealed that the angriest men were three times more likely to develop heart disease than the most placid ones. Angry older men, as stereotypes go, are most vulnerable [5, 6] Anger might produce direct physiological effects on the heart and arteries. Anger quickly activate the "fight or flight response," in which stress hormones, including adrenaline and cortisol, increases heart rate, blood pressure. While stress response mobilizes you for emergencies, it might cause harm if activated repeatedly [7]. People who have a tendency to ruminate about past anger-provoking events may be at greater risk for target organ damage as a result of sustained blood pressure elevations; the effect is exacerbated when distractions are not available to interrupt the ruminative process [8].

The present study was undertaken to observe the role of anger in development of left ventricular hypertrophy (LVH).

MATERIALS AND METHODS

Subjects

The present study was conducted at Little Flower Hospital, Kerala, India. 100 male (60) and female (40) patients admitted in Cardiac Centre were enrolled in the study. Patients who underwent echo – cardiography and can follow Malayalam and willing to participate were included in the study and those with serious illness were excluded. The purpose and procedure of the study was explained to each subject. Written informed consent was taken from all the participants. Study protocol was approved by Hospital ethical committee of Little Flower Hospital.

Methods

In the present study we have used Socio-demographic Performa and Novaco anger inventory short form [9,10]. Socio-demographic Performa includes age, gender, education, economic status of patients. The Novaco Anger Inventory - short form, was adapted from the long form and contains 25 of the original 90 items. The items on this scale describe situations that are related to anger arousal. For each of the items the subjects were asked to rate the degree to which the incident described would anger or provoke you by ticking the appropriate degree of annoyance. For each situation, the degrees given are very little (0), little (1), moderate amount (2), much (3), very much (4). The anger scores were arbitrarily classified into Mild Anger, Moderate and Severe Anger for the scores ranging from 0-33, 34-67 and 68-100 respectively.

Data analysis

The analysis of data is done by using SPSS 20.0. Socio-demographic variables are analysed by using frequencies and percentage. Relationship of anger with LVH was analysed by using pearson’s correlation. Association of anger and LVH with socio-demographic variables was analysed by using chi square test at 0.05 level of significance.

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RESULTS

Age	Frequency	Percentage
Young adults (15-29)	13	13
Older adults (30-59)	51	51
Elderly (above 60)	36	36

Table 1: Socio demographic characteristics

Gender	Frequency	Percentage
Male	60	60
Female	40	40

Table 2: Socio demographic characteristics

Occupation	Frequency	Percentage
Employed	24	24
Unemployed	76	76

Table 3: Socio demographic characteristics

51% of the patients were older (30-59), 36% were elderly (above 60) and 13% were young adults (15-29). 60% of the patients were males and 40% were females. (76%) were unemployed and 24% were employed.

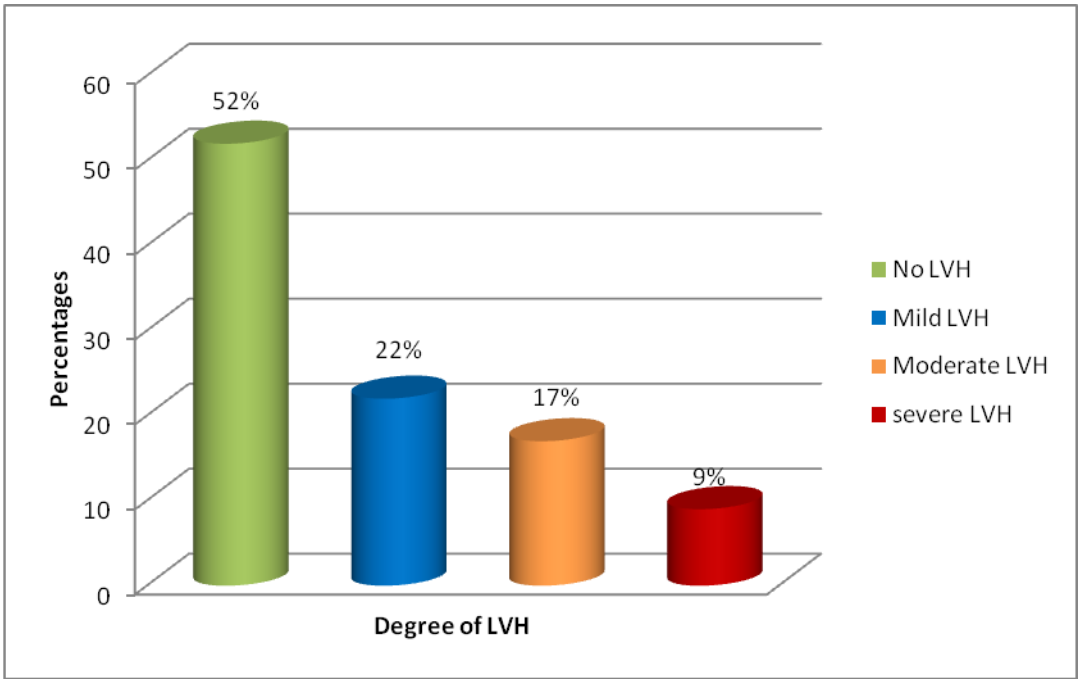

Figure 1: Percentage distribution of degree of Left Ventricular Hypertrophy among patients admitted in Cardiac Centre.

Figure 1 shows that about half (52%) of the patients had no LVH, 22% had mild LVH, 17% had moderate LVH and only 9% had severe LVH.

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Levels of anger	Frequency	Percentage
Mild	19	19
Moderate	51	51
Severe	30	30

Table 4: Frequency distribution and percentage of levels of anger among patients admitted in Cardiac Centre

Table 4 shows that 51% of the patients are having moderate anger, 30% had severe anger and 19% had mild anger.

Variables	Coefficient of Correlation (r)
Anger	0.09
LVH	

Table 5: Relationship between Anger and LVH among patients admitted in Cardiac Centre.

Table 5 shows a correlation coefficient of 0.09 between Anger and LVH and it is concluded that there is minimal positive correlation which is almost near to zero and can be excluded. So it is interpreted that there is no correlation between anger and LVH.

Age	No LVH	Mild LVH	Moderate LVH	Severe LVH	χ^2
Young adults	8	4	0	1	9.96
Older adults	22	14	12	3	
Elderly	22	4	5	5	

Table 6: Association of LVH with Age among patients admitted in Cardiac Centre

Chi square value with Yates correction as 9.96 ($p>0.05$) between LVH and age which is less than that of table value 12.592 for a degree of freedom 6 at 0.05 level of significance. It is interpreted that there is no association of age with LVH.

Sex	No LVH	Mild LVH	Moderate LVH	Severe LVH	χ^2
Male	30	15	6	9	11.06
Female	22	7	11	0	

Table 7: Association of LVH with Sex among patients admitted in Cardiac Centre

Occupation	No LVH	Mild LVH	Moderate LVH	Severe LVH	χ^2
Employed	12	6	4	2	0.16
Unemployed	40	16	13	7	

Table 8: Association of LVH with Occupation status among patients admitted in Cardiac Centre

Table 7,8 shows a chi square value with Yates correction as 11.06 ($p<0.025$) between LVH and sex , which is greater than that of table value (7.815) for a degree of freedom 3 at 0.05 level of significance. So it is interpreted that there is significant association between LVH and sex. Association between occupation status and LVH shows a chi square value of 0.16 ($p>0.975$) which is less than that of table value (7.815) for a degree of freedom 3 at 0.05 level of significance. So it is interpreted that there is no significant association between LVH and occupation.

Age	Mild anger	Moderate anger	Severe anger	χ^2
Young adults	1	8	4	3.5
Older adults	11	22	18	
Elderly	7	21	8	

Table 9: Association of Anger among patients admitted in Cardiac Centre with their Age

Table 9 shows a chi square value with Yates correction of 3.5 (p>0.1) between age and level of anger, which is less than that of table value (9.488) for a degree of freedom 4 at 0.05 level of significance. So it is interpreted that there is no significant association between age and level of anger.

Occupation	Mild anger	Moderate anger	Severe anger	χ^2
Employed	2	13	9	2.55
Unemployed	17	31	28	

Table 10: Association of Anger among patients admitted in Cardiac Centre, with their occupation.

Gender	Mild anger	Moderate anger	Severe anger	χ^2
Male	11	29	20	0.80
Female	8	22	10	

Table 11: Association of Anger among patients admitted in Cardiac Centre, with their sex.

Table 10, 11 shows a chi square value of 0.8 (p> 0.1) between sex and level of anger, which is less than that of table value (5.991) for a degree of freedom 2 at 0.05 level of significance. So it is interpreted that there is no association between sex and level of anger. The association of level of anger with occupation shows a chi square value of 2.545 (p>0.1) which is less than that of table value (5.991) for a degree of freedom 2 at 0.05 level of significance. So it is interpreted that there is no association between level of anger and occupation.

DISCUSSION AND CONCLUSION

The aim of the present study was to find out the role of anger in the development of left ventricular hypertrophy. The sample size was 100 and the tools used were socio-demographic proforma and Novaco Anger inventory –short form. The study findings reveals that there is negligible positive correlation between anger and left ventricular mass, there is strong association between left ventricular hypertrophy with sociodemographic variables like age, sex and occupation. No association were found between age, sex and occupation with Anger.

References

[1] http://www.who.int/mediacentre/factsheets/fs317/en/.
[2] http://content.onlinejacc.org/article.aspx?articleid=1485688#
[3] http://articles.timesofindia.indiatimes.com/2011-09-24/kochi/30197930_1_heart-disease-coronary-artery-disease-risk-factors
[4] http://www.macmillandictionary.com/dictionary/british/anger
[5] http://www.news.harvard.edu/gazette/2006/09.21/01-anger.html
[6] http://my.clevelandclinic.org/heart/prevention/stress/anger.aspx
[7] http://www.webmd.com/balance/stress-management/features/how-anger-hurts-your-heart
[8] William Gerin, Karina W. Davidson, Nicholas J S, Christenfield, Tanya Goyal, Joseph E Schwartz. Psychosom Med 2006; 68:000-000.
[9] Huss MT, Leak GK and Davis SF. Bull Psychon Soc 1993; 31:279-281.
[10] Mills JF, Kroner DG and Forth AE. Assessment 1998; 5:237-248
[11] https://www.wpspublish.com/store/.../NAS-PI_Manual_Chapter_1.pdf
[12] http://www.webmd.com/balance/stress-management/features/how-anger-hurts-your-heart