

Trends of Psychiatric Co-Morbidities Amongst Patients with Hypertrophic Cardiomyopathy: A Large Observational Cohort Study Spanning 14 Years

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Abstract

Background: The globally reported links between physical and psychiatric conditions has increased significantly in the last few years and this also rings true in the field of cardiology where the reported links between cardiovascular disease and psychiatric conditions have shown that one in four psychiatric patients' suffers from a cardiovascular co-morbidity.

Objectives: In light of this we investigated the prevalence of psychiatric co-morbidities and tendencies in patients with HCM over a 14 year period.

Methods: We compiled an anonymous database of all adult patients diagnosed with HCM across 7 hospitals in the north of England over a 14 year period (n = 248). We analysed the data for prevalence of psychiatric co-morbidities such as; anxiety disorder, schizophrenia, bipolar disease and depression and substance abuse. We traced our patients with the ACALM study protocol, which uses ICD-10 and OPCS-4 codes to allocate patients for statistical analysis using SPSS V. 20.0.

Results: Out of 248 patients with HCM, 8.87% had a psychiatric co-morbidity. We found that in our cohort 4.03% of patients had depression and 1.61% patients suffered from either from a phobic disorder or schizophrenia. In addition to this, in 9.68% of cases in our cohort we found that patients suffered from some form of substance misuse with 2.02% abusing alcohol and a further 7.26% whom smoke tobacco.

Conclusions: Ca. 1 in 10 patients (8.87%) with HCM suffer from a psychiatric co-morbidity and ca. 1 in 10 (9.68%) patients with HCM suffer from substance abuse. All patients with HCM should be approached holistically with a psychiatric assessment which includes social history.

Keywords: Hypertrophic Cardiomyopathy, Psychiatric Comorbidities, Trends

1. Background

The reported links between physical and psychiatric conditions has increased significantly in the last few years (1, 2). This also rings true in the field of cardiology where the reported links between cardiovascular disease and psychiatric conditions have shown that one in four psychiatric patients' suffers from a cardiovascular co-morbidity (3). Further to this, studies reveal that ca. 1 in 5 patients with coronary artery disease suffer from clinical depression (4) and it remains well known that depression and anxiety are significant and commonly reported factors in heart failure (4). In addition it has been shown that patients with non-ischaemic heart failure, such as hypertrophic cardiomyopathy (HCM) (5, 6) and dilated cardiomyopathy (DCM) (7)

experience anxiety and in some cases depression and other psychiatric co-morbidities. Recently, our group has shown that 1 in 10 patients with DCM suffer from a psychiatric co-morbidity and that 1 in 10 patients with DCM are suffering from some form of substance abuse in a paper spanning 14 years, bringing to the forefront that the approach to patients with non-ischaemic heart failure should include a psychiatric assessment as part of their medical management optimization (8).

2. Objectives

In addition to our recent retrospective DCM paper and the increasing evidence of association between psychiatric conditions and cardiovascular disease, we investigated the

prevalence of psychiatric co-morbidities and tendencies in patients with HCM over a 14 year period. Again we believe this study is first of its kind as it looks into HCM and the possible links to psychiatric conditions and tendencies over such a long period.

3. Methods

We compiled an entirely anonymous database of all adult patients diagnosed with hypertrophic cardiomyopathy across seven hospitals in the north of England, UK during the period 01/01/2000 to 31/03/2013. We analysed the data for prevalence of psychiatric co-morbidities such as; anxiety disorder, schizophrenia, bipolar disease and depression and substance abuse. We traced our patients with the ACALM (Algorithm for Co-morbidities, Associations, length of stay and Mortality) study protocol, which uses ICD-10 (International Classification of Disease, Version 10) and OPCS-4 (Office of population Censuses and Surveys Classification of Interventions and Procedures) procedure codes to correctly allocate patients for statistical analysis using SPSS Version 20.0. The prevalence data was assembled into five groups to aid analysis of trends over time. This methodology has been described and by our group and others previously (1-3, 9-22).

4. Results

Between the years 2000 and 2013, 929,552 patients were admitted. Of these, 248 (0.03%) had a diagnosis of hypertrophic cardiomyopathy. The majority of the population were made up of male patients (62.5%) and the mean age was 54.78 years \pm 17.52 years (S.D). The population consisted of mainly Caucasians (77.2%), with a South Asian population of 7.87%, an Afro-Caribbean population of 2.88% and an unknown ethnicity in 8.43% (See Table 1).

Of these 248 patients with hypertrophic cardiomyopathy, 8.87% (n=22) had a psychiatric co-morbidity. We found that in our cohort 4.03% (n=10) of patients had depression and 1.61% (n=4) patients suffered from either from a phobic disorder or schizophrenia. In addition to this, in 9.68% (n=24) of cases in our cohort we found that patients suffered from some form of substance misuse with 2.02% (n=5) abusing alcohol and a further 7.26% (n=18) whom smoke tobacco.

Cox et al used the short form 36 (SF-36) health survey and the hospital anxiety and depression (HAD) (23) in 137 cases and found that 13.1% had a possible diagnosis and 9.5% had a probable diagnosis of clinical depression. This finding is slightly higher than what we observed in our study in which 4.03% (n=10) of our patients had a diagnosis of depression. It is noteworthy for comparison that

our study observed patients diagnosed with depression by a healthcare professional as opposed to a patient questionnaire.

5. Discussion

Ingles et al. (24), showed that patients with HCM, and their relatives attending for screening in a specialised cardiac genetic clinic adjusted better to their diagnosis and risk of developing HCM respectively. They found that this reduction in worrying resulted in lower levels of depression associated with HCM.

Further supporting the theory of correlation and/or causation between heart disease and psychosocial co-morbidities is that in a retrospective study, Ingles et al. (24) found that patients with depression that were treated with antidepressants had fewer recurrent cardiac infarctions over a period of 39 months. However, this interesting phenomenon is yet to be studied in patients with HCM. It is important to know that most psychotropic medications may impair left ventricular function in the form of orthostatic hypotension and could thus worsen HCM (24). All this further raises questions, and demands further research into the possible correlative and/or causative link between non-ischaemic heart failure and psychosocial co-morbidities.

On the contrary however, it could be argued that the combination of psychiatric treatments effecting the cardiovascular system, the fact that patients with depression tend to be less compliant with prevention of disease and intervention and that patients with psychiatric conditions subscribe to a lifestyle which can have negative effect on cardiovascular wellbeing by ingesting alcohol and tobacco, both well known risk factors for cardiovascular disease, are the reasons for the correlation between psychiatric comorbidities and HCM, as with DCM (8).

5.1. Conclusions

It still remains debatable whether these psychiatric conditions and tendencies represent a causative or correlative link. Our group did however recently find a steady increase in the abuse of tobacco and alcohol, and the diagnosis of depression in relation to DCM (8). We have today found similar findings in which ca. one in ten patients (8.87% (n=22)) with HCM suffer from a psychiatric co-morbidity, and that ca. one in ten (9.68% (n=24)) patients with HCM subscribe to some form of substance abuse.

We wish to reiterate the need for a holistic approach to the care of patients with non-ischaemic heart such as DCM and HCM. We have again shown that a high proportion of patients with non-ischaemic heart failure, in this case

Table 1. Psychiatric Co-Morbidities in Patients With Hypertrophic Cardiomyopathy

	Prevalence of Co-Morbidity During the Time Period, %					Total in 14 years
	2000 - 2002	2003 - 2005	2006 - 2008	2009 - 2011	2012 - 2013	
N	42	53	79	58	16	
Psychiatric Condition						
Anxiety Disorder	0	0	1.27	0	0	0.40
Phobic Disorder	0	3.77	1.27	1.72	0	1.61
Schizophrenia	2.38	0	1.27	0	12.5	1.61
Bipolar Disease	2.38	0	1.27	0	6.25	1.21
Depression	4.76	3.77	2.53	5.17	6.25	4.03
Substance Abuse						
Tobacco Use	2.38	3.77	11.39	6.90	12.50	7.26
Alcohol Use	2.38	1.89	1.27	3.45	0	2.02
Cannabis Use	0	0	1.27	0	0	0.40

HCM, suffer from some form of psychiatric co-morbidity and/or tendency. All patients with non-ischaeamic heart failure seen by healthcare professionals should have their past medical history and social history inquired into, and we believe it would serve crucial to this holistic approach to have a psychiatric assessment to aid the medical investigation and management of HCM.

Footnote

Authors' Contribution: Study concept and design: Rahul Potluri; acquisition of data: Hardeep Uppal; analysis and interpretation of data: Debar Rasoul; drafting of the manuscript: Debar Rasoul; critical revision of the manuscript for important intellectual content: Sam C. Wong, Jaydeep Sarma; statistical analysis: Debar Rasoul; administrative, technical, and material support: Suresh Chandran; study supervision: Jaydeep Sarma, Rahul Potluri.

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