



REVIEW: CARDIOVASCULAR DISEASE AND MENTAL HEALTH FACTORS

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Abstract :

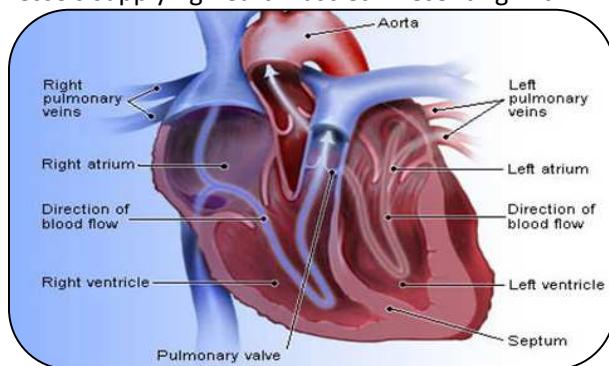
The present review focuses on different kinds of cardiovascular diseases and basic understanding of depression and anxiety. Finally reviewing psychological factors including depression and anxiety with cardiovascular diseases.

Method: This is a review of medical as well as psychological literature.

KEYWORDS: Cardio Vascular Disease, Depression, Anxiety, Myocardial Infarction.

INTRODUCTION

Cardio vascular disease describes diverse conditions including the disorders of the heart & blood vessels of heart.¹ Common cardio vascular conditions are: Coronary heart disease is the most common form of cardio vascular disease, basically disease of blood vessels supplying heart muscles. Presenting with 2



clinical forms: Heart attack and angina. Heart attack is a life threatening condition where the blood supply to heart gets blocked may suddenly causing harm to muscles and functionality of heart known as acute myocardial infarction. On the other hand, angina is a chronic condition where there are short episodes of chest pain due to temporary deficiency of blood supply to heart.

Ischemic heart disease is when decreased blood supply to heart due to narrowing of coronary arteries – it is known as IHD. When the valves of heart get damage with attack of rheumatic fever, most commonly due to streptococcal infection, it is known as rheumatic heart disease. Inflammation can be due to infectious agents, toxins or caused by unknown origin. The inflammation sites can be the membrane sac, inner lining of the heart as well as to the heart muscles leading to inflammatory heart disease. When constant high blood pressure noticed for prolonged time, it can cause damage to heart and other organs causing CAD, heart failure, cardiomyopathy, stroke as well as chronic kidney disease.^{2,3,4}

If there is any heart disease since birth, it is known as congenital heart disease. This defect can be with the blood vessels of heart, heart valves or in the heart. When there is fatty deposit in the arterial walls, they become rigid and thick, following reduction in blood flow. This phenomenon can happen throughout the body and even in the arteries supplying the heart, this is known as coronary artery disease.^{5, 6, 7}

As we come across day to day life that we all become anxious due to our life situations. But sometimes this anxiety becomes disorder when we persistently experience this feeling in form of fear, apprehension,

nervousness and worrying. Common types of anxiety disorders include-Generalized anxiety disorder, Obsessive compulsive disorder, Panic disorder, Post-traumatic stress disorder, Social anxiety disorder, Specific phobias.⁸

Sometimes the feeling of anxiety comes after a situation that it manages in itself without causing much of symptomatic behaviour in the individual .At times a sustained feeling of anxiety can cause symptomatic behaviour in the individual that can affect the everyday work life as well as personal life of that individual. Anxiety symptoms are perceived by an individual in various forms- GIT Symptoms being IBS, GERD, Bloating, Dyspepsia, loose stools, constipation. Cardiac symptoms – Palpitations, hypertension, sweating, tightness of chest and the effects on nervous system are Panic attacks, worry, obsessive thinking, restlessness, excessive fear, avoidance of situation etc.. Mood irritability can be one of the symptom during feeling of anxiety or in anxious mood.⁹

Generalized anxiety disorder is a kind of chronic disorder characterized by long lasting and excessive worry. The fear level is generally not idealistic. In Panic disorder there is a kind of sudden attack of anxiety leading to shakiness, confusion or breathing difficulty generally for short period of time.

Avoidance of any situation and unreasonable fear is phobia .When you are over anxious about any particular thing, actually that thing may not be dangerous or troublesome but it can make some people really nervous is basically classified as phobia .Example some people may have phobia from heights, phobia from water etc.When there is a fear of being embarrassed without reason or negatively accepted by people like stage fear it is a condition of social phobia. Generally patients with this kind of phobia avoid social gatherings.

Any thought or action that is recurring and stressful followed by non realistic compulsions like cleaning hands many times in a day is a condition of *obsession compulsion disorder*. Any behavioral changes which may have occurred in any individual because of trauma in the past like a person revived after a crash is to be classified as *post traumatic stress situation*. Any individual exhibiting high level of anxiety may be unreasonable and observable response upon separation from a particular place or individual which provides him feeling of protection is to be characterized as *separation anxiety disorder*.^{10, 11}.

Depression ¹² is a kind of a condition consists of many symptoms like sadness of mood, decreased interactions, decreased interest in pleasurable activities,increased guilt or worthlessness, decreased sleep, loss of energy, hypersomnia, change in appetite, psychomotor retardation or agitation and there may be difficulty in attention and concentration.^{13, 14, 15}. Depression may be Unipolar or Bipolar depression .Depression without any episode of elated moods or touching highs, is referred as unipolar depression or major depressive disorder because the mood remains totally down and does not climb high. Bipolar depression is the one which is associated with episodes of elated moods.

No doubt there are always psychological impact of cardiac illness which can be in the form of anxiety or depressive symptoms. If we talk about whether psychological disturbance in form of anxiety or depression leading to deterioration in cardiac illness or cardiac illness itself pose psychological burden on the patient, both these statement are valid and true. As we come across so many patients who at young age got to know about their recent status of cardiac illness – might be having hypertensive cardiomyopathy or had minor heart attack etc. They present with very severe psychological impact in the form of anxiety symptoms like palpitation and decreased sleep.

Many patients restrict themselves from any physical activities with fear that cardiac capacity will not support their physiological need. In certain cases, depressed patients don't like to do any physical exercise or doesn't like to come out of bed, just keep on lying –so this too can prolong their recovery after cardiac intervention and at times, patients avoid any physical activity having fear that they might not get another heart

attack by increasing the cardiac output (Overload). When constantly high blood pressure is noticed then it can cause damage to heart and other organs of the body like kidney ,eyes,CNS etc. causing CAD,HF, glomerulopathy, hypertensive retinopathy , haemorrhagic stroke etc

Few patients start experiencing depressive symptoms in form of sadness of mood, decreased interaction and decreased interest in pleasurable activities and marked disturbance in the sleep once they are diagnosed with cardiac illness. Few patients present with lethargic, depressive mood and with flat face effect thus leading to decreased cardiac output, sinking sensation, hypotension & bradycardia.

If we talk about elderly patients they experience more somatic symptoms in the form of unexplained chest pain, lethargy, sadness of mood and marked alteration in their appetite, they become over concerned about their dietary habits, sometime patient start taking support of alcohol to beat up their anxiety symptoms as well as to get sleep. As many person start consuming alcohol to tackle with their anxiety or depressive symptoms. An issue rises whether alcohol intake causes negative or positive impact on our mood. General view is that alcohol relaxes mind so decreases tachycardia and pressure effects on the heart and indirectly alleviates anxiety. So people get into the habit of taking alcohol and so become a case of alcohol dependence syndrome.

Depressive patients does not properly take care of their diet, sometimes they suffer from anaemia and again poses burden on cardiac status. Once the patient is labelled with cardiac illness, the patient becomes choosy about their diet-start avoiding many food with fear that this may not disturb the lipid profile and this leads to deterioration in cardiac illness.

Many of the times, sudden chest pain and tachycardia (palpitation) in case of young patient s are misdiagnosed as heart attack which actually turn out to be panic attacks after complete cardiac evaluation. So we come across so many patients who undergo cardiac investigation numerous times in the fear as if they are suffering from cardiac illness. But actually we need to actively and thoroughly evaluate the patients taking details, history and needed cardiac investigations. At times, this fear or anxiety further impedes the recovery of the patients from their illness, so we need to take psycho-cardiac-therapy to have better placement of the patient.

As mind and heart needs to be in equilibrium so that optimal functioning of the body can be achieved. As we know our behaviour is controlled by thoughts and emotional .Once there is some disturbing thought, this increases the psychic energy –directly increases the cardiac output leading to tachycardia and cardiac instability. Patient suffering from anxiety and depressive symptoms for prolonged time causes extra burden on heart which may have negative impact on heart in the form of tachycardia, palpitations, arrhythmias, increased cardiomyopathies etc.

So both ways- psychiatric illness (anxiety and depression) will affect cardiac status as well as cardiac illness can cause psychological disturbances in form of anxiety and depression too. If the right measures and correct intervention are taken at right time then number of cases can have better life styles. As proper pre and post cardiac intervention psychotherapy taken up then marked improvement can be noticed. Management of the cardiac diseases with psychological risk factors relies on combined battery of: Psychological and Pharmacological intervention along with proper dietary control and physical exercise.

STUDIES IN RELATION TO CARDIAC DISEASES AND PSYCHOLOGICAL FACTORS

With heart failure patients, the morbidity and mortality is high. It is not surprising that patients upon right intervention shows high level of psychological distress, reduced social functioning and diminished quality of life ¹⁶. Furthermore psychological factors play an important role in precipitating hospitalization in notable number of patients with congestive heart failure .It has earlier been exposed that emotional events preceded

admissions in 49 % of the patients with congestive heart failure compared to 24 % of the patients admitted with other medical conditions.¹⁷ There is extensive study going on between coronary artery disease, myocardial infarction and impact of psychological factors on these diseases. For example Dusseldorf et al¹⁸ conducted on psycho educational programmes for patients with coronary heart disease a metaanalysis research study and these programmes yielded 34 % reduction in mortality, a 29 % reduction in reoccurrence of myocardial infarction and notably contributed to better exercise and dietary habits. Slowly in medical intervention some clinicians are playing important role in giving consideration to psychological issues of coronary heart failure.

The well explored subject in cardiac psychology is depression.¹⁹ The prevalence of depression with myocardial infarction patients, is higher than that of healthy population .²⁰ Some authors also claim that depression in itself is , independent of other factors as age, severity of infarct, or sex, is a risk factor for further cardiac events and eventually mortality.²¹⁻²² There are many scales and inventories to measure depression with good reliability and validity available internationally to give better results to clinicians like HAMP , BDI , MABRS , Raskin scale .

Anxiety should be a right concern to clinicians as any patient with congestive heart failure may have negative cardiac output .There can be increase in heart rate due to stress which will negatively impact coronary artery perfusion through shorter diastole. There will be reduction in myocardial oxygen supply due to tachycardia; on the other hand myocardial oxygen demand is increased.²³ The patients can become too much concerned for their physical state which also increases their anxiety as well as poorer cardiac output. Their concerns about physical capability and anxiety with over taking participation in physical activities may also obstruct in rehabilitation attempt.²⁴ One of the newly recognized risk factor is mental stress in cardiac dysregulation.Due to an 'epigenetic psychobiologic susceptibility-the nexus of psychophysiologic reactivity and biopsychosocial vulnerability'. Acute emotional traumas could trigger a panic attack in some and may lead to transient or permanent cardiac damage or life threatening arrhythmias or death in others'. (Fisher and Collins, 2012, p.58).²⁵

DISCUSSION AND CONCLUSION

There is not much development in correlation of heart failure and psychological factors; however there has been considerable increase in this area of research in recent years because of the worldwide presence of disease as well as its growing nature. What we have reviewed in this study indicates that prevalence of depression among patients with congestive heart failure is high .Right intervention is required from patients as well as clinicians side to improve quality of life and general health condition of patients who had coronary heart failure .Anxiety appears to be ignored area of research with respect to coronary heart failure so further work and intervention is required in this domain for betterment of individuals through modernized and upcoming sophisticated healthcare system. Prevention is always better than cure. As we know coronary heart disease is consistently on the rising pattern worldwide it is very important for us to consider role of psychological factors in coronary heart disease. To contribute in form of awareness the role of possible psychological factors in Coronary heart disease with patients who are already diagnosed with coronary heart disease and are under treatment as well as to healthy pollution can be a great idea on the preventive grounds. The physical and psychological cost of ischemic heart disease chip in to substantial impairment of the quality of life in all proportions, both physical and mental ones.²⁶ There are many programmes worldwide running as cardiac rehabilitation programmes to prevent and manage chronic diseases like heart disease. These programmes run with focussed agendas like stress and anxiety management, depression management, making and maintaining lifestyle changes.²⁷ Generally in these programmes mental health specialist are included to teach people about different coping strategies.

REFERENCES

- [1] Media centre WHO, (2016) *Cardiovascular diseases (CVDs)*. Retrieved September 8, 2016, from <http://www.who.int/mediacentre/factsheets/fs317/en/>
- [2] Media centre WHO, (2016) *Cardiovascular diseases (CVDs)*. Retrieved September 8, 2016, from <http://www.who.int/mediacentre/factsheets/fs317/en/>
- [3] AIHW, *What is cardiovascular diseases (CVDs)*. Retrieved September 9, 2016, from <http://www.aihw.gov.au/cardiovascular-disease/what-is-cvd/>
- [4] World Heart Federation, *Different heart diseases (CVDs)*. Retrieved September 9, 2016, from <http://www.world-heart-federation.org/cardiovascular-health/heart-disease/different-heart-diseases/>
- [5] Mayo clinic, (2014) *Heart diseases (CVDs)*. Retrieved September 12, 2016, from <http://www.mayoclinic.org/diseases-conditions/heart-disease/basics/definition/con-20034056>
- [6] World Heart Federation, *Different heart diseases (CVDs)*. Retrieved September 12, 2016, from <http://www.world-heart-federation.org/cardiovascular-health/heart-disease/different-heart-diseases/>
- [7] Wikipidea, *Cardiovascular diseases*. Retrieved September 15, 2016, from https://en.wikipedia.org/wiki/Cardiovascular_disease
- [8] *What is anxiety*. Retrieved September 18, 2016, from http://www.youngminds.org.uk/for_children_and_yourself/whats_worrying_you/anxiety/what_is_anxiety
- [9] Crosta,C.,(2009). *Anxiety, causes, symptoms and treatments*.Retrieved September 18, 2016, from <http://www.medicalnewstoday.com/articles/265802.php>
- [10] *What are anxiety disorders*. Retrieved September 19, 2016, from <http://www.webmd.com/anxiety-panic/guide/mental-health-anxiety-disorders>
- [11] *Biofeedback as treatment for anxiety*. Retrieved September 19, 2016, from <http://www.calmclinic.com/biofeedback-as-treatment-for-anxiety>
- [12] Lane,C.,(2017).*Mood Disorders*. Retrieved September 19, 2016, from <http://www.psyweb.com/mdisord/jsp/moodd.jsp>
- [13] Midgley,J., Target,M.,Parkinson,S.,Holmes,J.,Stapley,E., *Improving Mood with Psychoanalytic and Cognitive Therapies*.Retrieved September 20, 2016, from <https://www.ucl.ac.uk/psychoanalysis/research/impact-me>
- [14] Midgley,J., Target,M.,Parkinson,S.,Holmes,J.,Stapley,E., *Improving Mood with Psychoanalytic and Cognitive Therapies*.Retrieved September 22, 2016, from <https://www.ucl.ac.uk/psychoanalysis/research/impact-me>
- [15] *Mood Disorders*. Retrieved September 26, 2016, from <https://www.mentalhealth.gov/what-to-look-for/mood-disorders/>
- [16-24] MacMahon,K.,(2002). *Psychological factors in heart failure*. Retrieved October 15, 2016, from <https://www.ncbi.nlm.nih.gov/pubmed/11871918>
- [25] Ginsberg,J.P.,Pietrabissa,G.,Manzoni,G.M.,Castelnuovo,G.,*Treating the mind to improve the heart : the summon to cardiac psychology*. Retrieved October 20, 2016, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4523709/>
- [26] Mierzynska,A.,Kowalska,M.,Stepnowska,M.Piotrowicz,R.,(2010).*Psychological support for patients following myocardial infarction* . Retrieved November 15, 2016, from <https://www.ncbi.nlm.nih.gov/pubmed/20535728>
- [27] CPA, (2014).*'Psychology works' fact sheet: psychological risk factors and heart disease*. Retrieved January 05, 2017,from http://www.cpa.ca/docs/File/Publications/FactSheets/PsychologyWorksFactSheet_HeartDisease.pdf