

# Depression & Heart Diseases



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Depression is not only a risk factor for the development and progression of atherosclerosis but also augments myocardial oxygen requirements via the sympathetic nervous system and thereby intensifies myocardial ischemia in patients with obstructive coronary disease. Many patients suffering from depression are heavy smokers or adopt some form of substance abuse. Among patients with angiographically documented coronary artery disease, cigarette smokers have higher five-year mortality and relative risk of infarction or sudden death than those who have quit smoking. There appears to be a strong association of myocardial infarction and smoking and this risk appears related to the number of cigarettes smoked per day than to the duration of smoking. Cocaine can cause coronary spasm. In addition, allopathic drugs used to treat depression may precipitate or intensify angina.

**MANAGEMENT**

The steps in managing patients of depression and heart diseases are

1. **COUNSELING:** Effective communication with both the patients of depression with angina pectoris and the family is essential. The psychosocial issues faced by the patient who develops chronic stable angina due to depression for the first time are similar to those experienced by the patient with an acute myocardial infarction. Many patients have an unrealistically gloomy perception of their prognosis. They should be offered a realistic appraisal with an understandable explanation of the pertinent clinical features of the disease. An important aspect of the physician's role is to counsel patients in the kind of work they can do in their

leisure activities, eating habits, vacation plans etc. It is desirable, if possible, to consult with the closest member(s) of the family, both to ensure an accurate and full assessment of the patients' activities and to inform the family of what can be expected in the course of the patients' sickness. An effort should be made to minimize emotional outbursts since they increase myocardial oxygen requirements and often induce coronary vasoconstriction.

2. **MANAGING STRESS:** Psychophysiologic stress is a notable feature of the relationship between myocardial ischemia and the patient's daily environment. Depressive symptoms are common in stable coronary artery disease patients, with prevalence estimates ranging from 15 to 30%. Depression should be screened for and appropriately treated. An important prerequisite in stress management is the identification of stressors. The clinician needs to assess the effects of those stressors upon the individual and chalk out plans for the help that is required by the patient. At the same time he or she has also to take into account the provisions available with the patient.

a) **Stress in Occupation:** Job related factors that appear to influence the induction or exacerbation of coronary artery disease include perceived job stress, role ambiguity, job autonomy, job change, unemployment and retirement. However such causality is controversial. When stress was present its demonstrable impact was believed to be strong. The Honolulu Heart Studies was unable to support the hypothesis that men in high stress occupations have an enhanced risk of developing coronary artery disease. In this large scale study involving 8000 men, there were no significant

association between the presence of coronary artery disease and individual job demands. But another study weighed job stimulated stress against: echo-cardio-graphically determined left ventricular mass and ambulatory blood pressure recordings. It showed a positive co-relation between the two.

**b) Stress and the Melancholic Temperament:**

People with a melancholic temperament are characterized as highly passive, indolent but easily disturbed by environmental stress. According to the FRAMINGHAM study, Type-B behavior patterns ie those with a melancholic temperament were associated with two fold increase in the development of angina pectoris. Other studies have shown increased episodes of painful ischemia in people with the above-mentioned temperament when compared with those of sanguine or bilious temperament with an equivalent ischemic burden. In depression it is proposed that stress induces a rise in blood pressure due to excess adrenergic output, leading to coronary arterial vasoconstriction. Lipid values are also altered in people under stress. Hence, it is imperative for a physician to identify the various temperaments and administer counseling and or psychotherapeutic measures to modify the basic state of disposition.

3. Apart from the routine psychotherapy and counseling, the therapist may also be required to reassure the patient. Hypnotherapy and a variety of so called Stress outlets like Games, Relaxing, Gossiping, Laughing, Writing, Talking, Drawing, Traveling, Hobby cultivation, Music, Singing, Dancing, Day Dreaming, etc need to be advised. Persons of reserved temperament or of introvert nature have to be prompted to become more social by visiting parties or developing good friendship or peer support system. Finally the age-old Indian art of relieving stress is Yoga, *Pranayama* and meditation. All these three need to be learnt by the patient and practiced under supervision and preferably along with a group.

4. TOBACCO: The use of tobacco products

remains a major remediable risk factor especially in patients of depression and those prone to development of coronary artery disease and manifesting as angina pectoris. They accelerate the process of atherosclerosis, alter blood pressure levels and worsen the outcome. Cigarette smoke exerts many effects on clotting factors, platelet function and other hematological parameters that play significant role in atherosclerosis. It affects endothelial function directly by decreasing the ability to produce or release prostacycline, thus changing platelet aggregation and vascular tone. Approximately 50- 150 ug of nicotine is absorbed through the lung mucosa. Nicotine is a potent agonist for the adrenergic nervous system and causes increased plasma nor-epinephrine release. It increases coronary tone and enhances vaso-constriction. For patients with chronic stable or unstable angina pectoris with or without coronary artery diseases who are cigarette smokers should be persuaded to discontinue this practice.

5. ALCOHOL: Excessive alcohol, frequently found in patients of depression (psoro-syphilitic state of disposition) is an established preventable cause of morbidity and mortality. The effects of alcohol on cardiovascular function occur by both primary and secondary mechanisms. It raises HDL levels and hence moderate consumption has been attributed to offer a protective role. Overt coronary artery disease has been shown to be inversely related to moderate alcohol consumption.

6. LIFESTYLE CHANGES: Certain changes in lifestyle may be helpful, such as modifying strenuous activities if they repeatedly produce angina. These changes may be minor for example Golfing to be modified to include use of a golf cart instead of walking. Many activities, such as shopping or climbing stairs need not be discontinued. Often it is merely necessary to perform them more slowly or to pause for brief periods of rest. Patients with chronic stable angina should avoid excessive fatigue and

exhaustion; 1-2 regular rest periods during each day are helpful. While it is desirable to minimize the number of bouts of angina, an occasional episode is not to be feared. Unless patients reach their anginal threshold, they may not appreciate the extent of their exercise capacity. The propensity for angina actually declines, due to the development of collaterals or because of training effects. Patients learn their usual threshold by trial and error. Patients should avoid sudden bursts of activity, particularly after long periods of rest. Chronic angina exhibits a circadian rhythm characterized by a lower anginal threshold shortly after arising. Therefore, morning activities such as showering, shaving and dressing, should be done at a slower pace.

7. **SEX:** The stress of sexual intercourse is approximately equal to that of climbing one flight of stairs at a normal pace or of any activity that induces a heart rate of approximately 120 beats/min. But in depression it is the first activity that is voluntarily suspended. Psychotherapy, preferably involving the patient and his/ her partner, should be given in this regard and if taboos are there, then they need to be removed.

8. A long lunch break including a nap may at times be beneficial. It may be helpful for the patient to use a face mask or scarf to cover the mouth or nose in cold weather. A hot, humid environment may also precipitate angina, and air conditioning may be a necessity rather than a luxury for patients with ischemic heart disease. Large meals can have a similar effect if they are followed by exertion.

9. **EXERCISE** - Long term physical activity is known to be important in maintaining ideal body weight, muscle mass, normal blood pressure and optimizing lipid values. Patients who exercise regularly have been reported to show decreased incidence of anginal symptoms and sudden cardiac death. Regular aerobic exercise decreases both systolic and diastolic blood pressure levels by altering the rennin-angiotensin-aldosterone axis. The best available

evidence indicates that regular moderate physical activity is beneficial in the primary and secondary prevention of coronary artery disease and thereby angina pectoris. At least 3 sessions per week are required each lasting for 20-30 minutes are found to bring significant improvement in the symptoms of angina due to coronary artery disease. The conditioning effect of exercise on skeletal muscles allows the patient to develop a greater work load at any level of total body oxygen consumption. The conditioning effect of exercise on the heart by decreasing the heart rate at any level of exercise, allows a higher cardiac output to be achieved. It thus permits the patient to increase the physical performance substantially following a continuing exercise program. RED WOOD et al carried out a study in patients with Chronic Stable Angina. They reported that a six week training program improved exercise performance by reducing the responses of heart rate and arterial pressure to bicycle exercise and by prolonging the duration of exercise before angina occurred. Exercise accelerates the development of collateral vessels in patients with Chronic Stable Angina. Hence, patients are urged to participate in regular exercise program-usually walking. The American College of Cardiology endorses a minimum schedule of 30 to 60 minutes of aerobic activity (walking, jogging, etc.) three to four times per week, supplemented by an increase in daily lifestyle activities (walking breaks at work, gardening, etc.) Medically supervised programs are recommended for moderate- to high-risk patients. Exercise can be an important adjunct to modification of risk factors such as hypertension, hyperlipidemia, and obesity. In addition, it can enhance patients' perception of their quality of life. Strenuous activities should be modified if they produce severe or prolonged angina; caution is needed to avoid consistent reproduction of ischemic symptoms or situations that may precipitate ischemic complications. Education is critical in achieving these goals. ●