

Panic Disorder: A Frequent Occurrence in Patients with Chest Pain and Normal Coronary Arteries

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Abstract

From 10% to 20% of patients undergoing coronary arteriography for chest pain are subsequently found to have normal coronary arteries. We investigated the prevalence of panic disorder in these patients in a two-stage study. Our results indicate that approximately one third of patients with chest pain and angiographically normal coronary arteries have panic disorder. Proper diagnosis and treatment of these patients with panic disorder may be expected to substantially reduce their psychosocial morbidity.

Introduction

From 10% to 20% of patients who undergo coronary arteriography for chest pain have normal coronary arteries.¹ With the finding of normal coronaries, cardiologists are frequently at a loss to find a valid explanation for the patient's chest pain. It can be conservatively estimated that approximately 30,000 such patients are encountered in the United States annually. Generally these patients are reassured regarding the benign nature of their illness, but considerable morbidity persists.²

The etiology of chest pain in this group of patients remains unclear. The current literature suggests that the group is heterogeneous and the cause of chest pain is probably multifactorial.

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Psychological causes have been proposed as a cause of chest pain in some of these patients. We focused on panic disorder since chest pain is known to be a common symptom of this disorder.³ The purpose of our study was to determine the prevalence of panic attacks and panic disorder in chest pain patients with angiographically normal or near-normal coronary arteries.

Methods

Patient Selection

Patients undergoing cardiac catheterization for chest pain at the University of Missouri Hospital in Columbia, Missouri, were included in the study when they were found to have normal or near-normal coronary arteries with less than 30% stenosis of all major coronary arteries. Patients with any coronary lesion causing stenosis exceeding 30%, as well as patients with any other heart disease, such as valvular heart disease (including mitral valve prolapse), cardiomyopathy, congenital heart disease, hypertensive heart disease, or pericardial disease, were excluded from the study. Also excluded were patients with any obvious noncardiac cause of chest pain.

Protocol

For the purposes of our study standard psychiatric criteria were used in the diagnosis of panic attacks and panic disorder. The diagnosis of panic disorder was made when the subject met revised DSM-III (Diagnostic and Statistical Manual for Mental Disorder, third edition)⁴ criteria for panic disorder and had had one panic attack or acute anxiety attack per week for the past three weeks. It was also necessary that the panic attacks occur in circumstances other than during marked physical exertion or in a life-threatening situation. Attacks that were precipitated only by exposure to a circumscribed phobic stimulus were not considered for the study. Panic attacks were defined as discrete periods of intense discomfort or fear with the presence of at least four of the following symptoms during each attack: (1) dyspnea; (2) palpitations; (3) chest pain or discomfort; (4) choking or smothering sensation; (5) dizziness, vertigo, or unsteady feelings; (6) paresthesias or tingling in the hands or feet; (7) nausea or abdominal distress; (8) hot and cold flashes; (9) sweating; (10) faintness; (11) depersonalization or derealization; (12) trembling or shaking; (13) fear of dying; (14) fear of going crazy or doing something uncontrolled during an attack.

The first part of the study was a retrospective review of 123 consecutive patients with chest pain and normal or near-normal coronary arteries by cardiac catheterization. The cases were reviewed for the recorded occurrence of panic attack symptoms. The number of panic symptoms experienced by each patient was also noted.

The retrospective review was followed by a prospective study of 24 consecutive patients with chest pain who underwent cardiac catheterization and were subsequently found to have angiographically normal coronary arteries. The same criteria for patient selection and exclusion were used. The patients were tested within twenty-four hours of the catheterization procedure. Each patient completed self-report forms and then underwent a structured clinical interview⁵ administered by a psychiatrist. The interview focused on the diagnosis of panic attacks and panic disorder but also provided for the diagnosis of current and past episodes of major depression and other psychiatric disorders.

Results

Patient Characteristics

For the first part of the study 123 cases were reviewed. There were 47 males and 76 females with an age range of twenty to seventy-seven years (mean 50.8 years). For the second part of the study 24 patients were interviewed. There were 9 males and 15 females with an age range of twenty-four to seventy-one years (mean 51.5 years).

Retrospective Study

In addition to chest pain, the following somatic symptoms of panic attacks were found to be most consistently recorded: dyspnea, palpitations, diaphoresis, paresthesias (or radiation of pain), dizziness, or faintness. Dyspnea was reported in 65 patients (53%), palpitations in 16 (13%), diaphoresis in 56 (46%), paresthesias in 91 (74%), and dizziness in 5 (4%). The data also showed that four symptoms of panic attacks occurred in 40 patients (32%), three in 76 (62%), and two in 110 (89%). Since the presence of four of these symptoms along with apprehension or fear satisfies the diagnostic criteria for panic attacks, these data suggested that many patients with chest pain and angiographically normal or near-normal coronary arteries were probably having panic attacks.

Prospective Study

This phase of the study involved 25 consecutive patients who were contacted for the study within four hours of cardiac catheterization and the diagnosis of normal coronaries. One patient refused to participate in the study. Psychiatric evaluation of the remaining 24 showed that 8 patients (33%) had current panic disorder and 1 had had indications of panic disorder in the past. Additionally, 5 other patients were having panic attacks although the frequency of the attacks did not strictly satisfy the diagnostic criteria for panic disorder. Three of the eight patients (38%) with current panic disorder also fit the revised DSM-III⁴ criteria for current major depression.

Discussion

The syndrome of angina pectoris with normal coronary arteries has been variously called ANCA or X syndrome.⁶ This condition cannot be explained as a false-negative or misinterpreted coronary angiogram, for the mortality rate of this group of patients is comparable with that of the normal population and is clearly different from that of patients with coronary artery disease.^{7,8} Prior studies suggest that this is a heterogeneous group of patients and that the etiology of chest pain is multifactorial. Most investigators on this subject have excluded patients with obvious pulmonary, abdominal, or rheumatologic disease, as well as patients with valvular, hypertensive, or pericardial disease. The characteristic electrocardiographic features of Prinzmetal's angina are usually not found in these patients, and a number of studies have shown that a vasospastic response to ergonovine can be elicited in less than 10% of this group.⁹ Endomyocardial biopsies performed on these patients have failed to demonstrate any small-vessel disease involving the coronaries.¹⁰ Esophageal abnormalities are estimated to occur in up to 46% of these patients¹¹ compared with 33% in postmyocardial infarction patients.¹² Hematologic causes that have been suggested include abnormal oxygen-hemoglobin saturation curve^{13,14} and enhanced platelet aggregation.^{15,16} Other possible cardiac causes that have been investigated include reduced coronary vasodilatory reserve,¹⁷ myocardial perfusion abnormal-

ity,¹⁸ hyperdynamic ventricle,¹⁹ and abnormal lactate metabolism.²⁰ Each of these theories can explain the chest pain in only a small percentage of this group of patients.

Although the finding of normal coronary arteries in these patients with chest pain has been shown to correlate with an excellent prognosis for longevity, most of these patients continue to suffer significant psychosocial disability. Approximately 70% continue to experience chest pain and many complain that it limits their activities. Most of the patients maintain that their chest discomfort has remained unchanged following catheterization. About half the patients continue to use antianginal drugs and many continue to insist that they have heart disease. More than 60% of the patients are unable to maintain any gainful employment because of their chest pain. Thus, despite the demonstration of anatomically normal coronary arteries and the accompanying good prognosis for longevity, most of these patients continue to experience symptoms and report various degrees of disability.²¹

It has been well known for many years that a certain percentage of patients with cardiac symptoms have no demonstrable cardiac pathology. In 1871 DaCosta²² described "the irritable heart syndrome," which was subsequently called DaCosta's syndrome or effort syndrome and later variously described as "soldier's heart," "cardiac neurosis," "neurocirculatory asthenia," and "hyperventilation syndrome."²³ In 1941 Wood presented an extensive review of the subject and concluded that the etiology of the problem was predominantly psychiatric.²⁴ In 1984 Bass and Wade studied 99 patients with a presumptive diagnosis of coronary artery disease shortly after angiography using standardized psychiatric interviews. Forty-six patients in this group had less than 50% obstruction in any coronary vessel and among them 17 patients fit the diagnostic criteria for anxiety neurosis.² Panic disorder, a subtype of anxiety, is manifested by discrete periods of apprehension or fear and a number of accompanying symptoms, including chest pain. The condition affects an estimated 2-5% of the general population, but studies have shown that this disorder can be diagnosed in as much as 10-14% of patients in a cardiology practice.³

In this study on patients with chest pain and angiographically normal coronary arteries we have investigated 123 cases retrospectively and 24 cases prospectively. Our results suggest that approximately one third of these patients suffer from panic disorder, a condition known to be amenable to therapy. On the basis of our findings we suggest that psychiatric evaluation be considered for these patients. Proper identification and therapy of the patients with panic disorder may be expected to substantially ameliorate their psychosocial morbidity and economic disability.

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