

ATYPICAL ANGINA IN PATIENTS WITH  
CORONARY ARTERY DISEASE  
SUGGESTS PANIC DISORDER

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**ABSTRACT**

The occurrence of psychiatric disorders in patients with "medical" problems is not only possible but maybe even facilitated by these problems. This article examines the relationship between the type of chest pain and the diagnosis of panic disorder among coronary artery disease (CAD) patients. Forty-nine such cardiology patients were interviewed using a structured instrument. Forty percent of patients with atypical angina met DSM-III-R criteria for current panic disorder while no panic disorder was identified in the typical angina group. This finding should have great implications for the care of CAD patients. At least many of the atypical angina patients could benefit from standard effective treatment for panic disorder. This would likely improve their functioning and decrease the financial burden on them and the health care system.

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Among the most problematic patients for cardiologists are those with coronary artery disease (CAD) who report continuing episodes of chest pain and related symptoms in spite of seemingly adequate therapy. This is not surprising since even among normal coronary patients several studies have shown that up to 65 percent continue to complain of chest pain over follow-up periods from two to six years [1-3]. These patients are frequently on multiple antianginal medications: nitrates, beta-blockers and calcium channel blockers. Many of the patients undergo coronary angioplasty or even coronary artery by-pass grafting. In evaluating these patients for continuing symptoms, if the results of electrocardiographic monitoring and stress testing are inconclusive and if repeat coronary arteriography fails to show progression of disease, the cardiologist is often at a loss in making a precise determination of the patient's condition.

In a previous investigation, we examined 104 consecutive consenting cardiology outpatients with atypical angina, thirty of whom had coronary artery disease (CAD). Of these thirty CAD patients, sixteen (53%) fit criteria for panic disorder (PD) [4] and forty-three (58%) of the non-CAD patients qualified for the diagnosis of PD. This finding strongly suggested that CAD and PD may co-occur. It also raised the question about whether the cardiologist's designation of atypical angina in patients with CAD might be a potential marker for PD. Other studies have indirectly suggested that typical angina in patients with CAD is infrequently associated with panic disorder [5, 6]. Of fifty-three subjects with CAD documented by angiogram Bass and Wade found only 2 percent to fit criteria for anxiety neurosis [5]. Katon et al. found only 6.5 percent among forty-six subjects with CAD and predominantly typical angina documented by angiogram to fit panic disorder diagnosis [6]. We wished to clarify this issue by interviewing patients with typical angina and CAD and comparing them with subjects with atypical angina and CAD.

## METHOD

### Subjects

Clinical cardiologists at a university hospital referred forty-nine cardiology patients (30 males and 19 females) who ranged in age from thirty-four to eighty-three years with a mean age of 56.3 years (SD = 12.0 years). All study subjects were consenting cardiology patients seen as inpatients or outpatients and determined by cardiologists to have coronary artery disease (CAD) and either atypical ( $n = 32$  [65.3%]) or typical ( $n = 17$  [34.7%]) angina. The atypical group was composed primarily of outpatients interviewed as part of another study [1] (30/32), while the typical subjects were all inpatients diagnosed with CAD by coronary arteriography (any coronary lesion causing at least stenosis). Cardiologists defined angina as typical if it was characterized by the following criteria: 1) substernal; 2) exertional; and, 3) relieved by rest or

nitroglycerin. Atypical angina was defined as chest pain characterized by the presence of one or two of those symptoms but *not* all three. In keeping with standard clinical practice, the presence of CAD in the outpatient group was determined by the cardiologists through the use of interviews, stress testing with or without thallium scintigraphy and/or by coronary arteriography.

### Measures

*Interview* — The Structured Clinical Interview for DSM-III (SCID-UP) was utilized to assess the presence of panic disorder in study subjects [7]. The SCIDUP was specifically developed for the diagnosis of panic disorder, phobic avoidance (agoraphobia), social phobia, simple phobia and major depression. Study subjects were considered positive for current panic disorder if they met criteria specified for that disorder by the Work-group to revise the Diagnostic and Statistical Manual of Mental Disorders—third edition (DSM-III) [8] and also had at least one panic attack in each of the previous three weeks. This latter criterion ensured that subjects with PD would be experiencing an ongoing series of attacks at the time of interview rather than a single cluster some time in the recent past. The diagnosis of past panic disorder was made if a subject met the same criteria for PD as mentioned above anytime in the past and has not been having one attack per week in the immediate three weeks before the evaluation. When subjects agreed to participate, cardiologists contacted a member of our research team who set up an appointment for an interview. Interviews were performed by two board eligible psychiatrists (30) and one fourth year medical student all specifically trained to perform the structured interview (19).

## RESULTS

### Interview Results

Eighteen (36.7%) of the total sample ( $N = 49$ ) were positive for a lifetime history of panic disorder. Of those eighteen patients, thirteen (26.5% of the total sample) were positive for panic disorder at the time of the interview [PD(+)]. PD(+) subjects had a mean age of PD onset of 52.7 years ( $SD = 13.1$  years), and the mean duration of PD was 11.3 years ( $SD = 12.3$  years). PD subjects reported experiencing a mean of 3.8 panic attacks in the week preceding the interview ( $SD = 3.4$  panic attacks), with a typical episode involving a mean of 7.6 panic symptoms ( $SD = 1.9$  panic symptoms).

### Cross-Sectional Comparison of Typical and Atypical Chest Pain Patients

Table I displays demographic data for CAD patients with atypical and typical chest pain. Statistical comparisons demonstrated that patients did

Table 1. Demographic Data for CAD Patients with Atypical and Typical Chest Pain

	CAD Patients			
	Typical Chest Pain (n = 17)		Atypical Chest Pain (n = 32)	
	n	Percent	n	Percent
Sex				
Male	12	70.6	18	56.3
Female	5	29.4	14	43.8
Age				
Mean		59.3		54.7
SD		12.1		11.8
Marital status				
Married	10	66.7	22	68.8
Separated/Divorced	2	13.3	5	15.6
Never married	0	0.0	1	3.1
Widowed	4	12.5	3	20.0

Table 2. Panic Disorder in Patients with either Typical or Atypical Chest Pain

	CAD Patients			
	Typical Chest Pain (n = 17)		Atypical Chest Pain (n = 32)	
	n	Percent	n	Percent
Current panic disorder	0	0.0	13	40.6
Past panic disorder	1	5.9	4	5.9

Note: Subjects with current panic disorder were not coded for the presence or absence of past panic disorder.

not differ on demographic variables based on the type of angina that they were experiencing.

Table 2 shows the number and percent of patients diagnosed with current or past panic disorder separately for those experiencing typical or atypical chest pain. Chi-square analysis of those with versus those without a history of panic disorder demonstrated a highly significant effect for type of angina ( $\chi^2(1.49) = 10.66, p < .001$ ). As seen in Table 2, patients with CAD and atypical angina were significantly more likely to have a positive history of panic disorder than were those with CAD and typical angina.

## DISCUSSION

This study suggests 1) that panic disorder and coronary **artery disease do** occur together and 2) that the cardiologist's designation of atypical angina is likely to be associated with PD while typical angina is weakly associated with PD. These findings are supported by previous studies implicating hyperventilation as a possible etiological factor in the chest pain of patients with typical angina [9].

The validity of these conclusions is limited because interviewers were not blind to chest pain status. Also the fact that the atypical angina group came mainly from another study where the incidence of panic was high could have influenced the results. Nevertheless our finding that CAD with typical angina is rarely associated with PD is supported by two previous studies [5, 6].

To our knowledge no one has systematically studied CAD patients for psychiatric disorders stratified into chest pain types. While it is well known clinically that CAD and "cardiac neurosis" co-exist, this is the first study to support the association of PD and atypical angina in patients with **CAD**. Another possible criticism is that the typical angina subjects were all inpatients while the atypical group were all outpatients. However, in two previous studies (one outpatient and one inpatient) we found almost the same rate of panic disorder.

Importantly, the groups used in this study closely resemble those found in a typical clinical practice. For example, among cardiology inpatients admitted for a coronary angiogram the occurrence of typical angina is high. The next steps in examining this population will include: 1) replication of the current study with blinded interviewers, 2) family studies of patients with CAD and PD, and 3) treatment outcome studies using standard antipanic medications and possibly psychotherapy [10].

## REFERENCES

1. I. S. Ockene, M. J. Shay, J. S. Alpert, et al., Unexplained Chest Pain in Patients with Normal Coronary Arteriograms. *New England Journal of Medicine*, 303, pp. 1249-1252, 1980.
2. M. N. Papanicolaou, R. M. Califf, M. A. Hlatky, et al., Prognostic Implications of Angiographically Normal and Insignificantly Narrowed Coronary Arteries. *American Journal of Cardiology*, 58, pp. 1181-1187, 1986.
3. E. B. Lavey and R. A. Winkle, Continuing Disability of Patients with Chest Pain and Normal Coronary Arteriograms, *Journal of Chronic Disease*, 32, pp. 191-196, 1979.
4. B. D. Beitman, I. Basha, G. Flaker, et al., Atypical or Nonanginal Chest Pain: Panic Disorder or Coronary Artery Disease? *Archives of Internal Medicine*, 147, pp. 1548-1552, 1987.

5. C. Bass and C. Wade, Chest Pain with Normal Coronary Arteries: A Comparative Study of Psychiatric and Social Morbidity, *Psychological Medicine*, 14, pp. 51-61, 1984.
6. W. Katon, M. L. Hall, J. Russo, et al., The Relationship of Psychiatric Illness to Coronary Arteriographic Results, *American Journal of Medicine*, 84, pp. 1-9, 1988.
7. R. L. Spitzer and J. B. Williams, *Structured Clinical Interview for DSM-III, Upjohn Version*, New York State Psychiatric Institute, New York, 1983.
8. Work Group to Revise DSM-III, *DSM-III-R in Development*, American Psychiatric Association, Washington, D.C., 1985.
9. L. J. Freeman, P. G. F. Nixon, C. Legg, et al., Hyperventilation and Angina Pectoris, *Journal of the Royal College of Physicians of London*. 21, pp. 46-54, 1987.
10. D. H. Barlow and J. A. Cerny, *Psychological Treatment of Panic*, Guilford Press, New York, 1988.

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