Identification and Treatment of Psychosocial Risk Factors for Coronary Artery Disease

Since the introduction of the concept of the type A behavior pattern by Friedman and Rosenman in 1959, investigators have had an ongoing interest in the relationship between psychosocial risk factors and the epidemiologic and pathophysiologic features of coronary artery disease. In recent years, emphasis has shifted from attempting to predict the development of coronary artery disease in healthy subjects to evaluating the influence of psychosocial factors on secondary events, health-care costs, and survival in patients with established coronary artery disease. Moreover, the hegemony of the type A behavior pattern as the primary psychosocial risk factor has yielded to a variety of definitions of psychosocial risk. The concept of type A behavior itself has been further refined into a "hostility complex," shown to be the critical part of the type A behavior pattern responsible for increasing coronary risk. Hostility is the particular characterization of psychosocial risk used by Goodman and associates in their article in this issue of the Mayo Clinic Proceedings (pages 729 to 734).

Although the conclusion that hostility predicts restenosis after percutaneous transluminal coronary angioplasty (PTCA), based on the data of Goodman and colleagues, could best be described as preliminary (because of the small and diverse sample size and some methodologic limitations appropriately acknowledged by the authors), the article adds yet one more piece of evidence that psychosocial factors have a major role in destabilizing coronary artery disease and leading to new coronary events in some fashion. The article is also valuable in that it is the only second published study of psychosocial risk factors to assess PTCA-treated patients, an increasingly large group of patients with a high risk of recurrence of coronary artery disease that is potentially available for future prospective studies.

Despite the now overwhelming evidence of the importance of psychosocial risk factors in coronary artery disease, the practical questions of how to identify patients at risk and how to intervene remain incompletely answered. Recently, considerable interest has also been generated in the elucidation of the physiologic mechanisms underlying psychosocial risk factors, although this subject is beyond the scope of this editorial.
terms of recurrent events. Most likely, multiple dimensions of psychosocial risk represent one or at most a few common psychologic and physiologic states.

Although space restrictions prohibit a discussion of various theories of the underlying physiologic mechanisms, the limited available studies clearly support the hypothesis that psychologic stress may trigger acute coronary events. Mittleman and associates\textsuperscript{12} have shown that acute myocardial infarction can be triggered by episodes of anger, and Leor and colleagues\textsuperscript{13} have shown that acute psychologic stress (the 1994 earthquake in Los Angeles County) can trigger sudden cardiac death. Presumably, patients with psychosocial risk factors such as depression or hostility would be most vulnerable to the effects of anger (or have more anger) and stress, although neither study presented data to address that presumption.

Studies of Intervention.—To date, two large studies have attempted to intervene for psychosocial risk in coronary patients. In a 4.5-year follow-up study of 1,013 patients who had had myocardial infarction, Friedman and coworkers\textsuperscript{14} attempted to determine whether group counseling to modify type A behavior would reduce recurrent events. Of the total group, 862 patients were randomized to either a “cardiac counseling” group (N = 270) or a “type A counseling” group (N = 592). The other 151 patients, who did not volunteer for randomization, received usual care. The 4.5-year recurrence rates were 12.9% for patients in type A counseling in comparison with 21.2% for those in cardiac counseling and 28.2% for those receiving usual care.

The second large study of the benefits of intervention for psychosocial risk was reported by Frasure-Smith and associates.\textsuperscript{8} Patients who had had myocardial infarction (N = 461) were randomly assigned to a control group or treatment with a life stress monitoring program that consisted of a telephone interview 1 week after dismissal and every month thereafter. Patients were given the GHQ-20 over the telephone. Patients with five or more positive responses were visited by a nurse, who provided individualized intervention including support, education, and referral. All patients initially underwent in-hospital assessment of risk with use of the GHQ-20. Initially high-stress men with non-Q-wave myocardial infarctions who were in the control group exhibited a 5-year cardiac mortality of more than 50% versus 14% in initially low-stress control patients. In the treatment group of patients with non-Q-wave myocardial infarction, both initially high- and low-stress patients had a low (12%) 5-year cardiac mortality. Among patients with Q-wave myocardial infarction, differences between initially high-versus low-stress patients and treatment versus control patients (and the interaction) were small and non-significant.

An additional 16 intervention trials involving smaller numbers of patients with coronary artery disease have measured either mortality or recurrent events. These results have recently been reported in a meta-analysis by Linden and associates.\textsuperscript{15} Interventions have included such varied techniques as group psychotherapy, stress management training, music therapy, and relaxation training. Linden and colleagues calculated a statistically significant odds ratio (control/treatment) of 1.84 for 2-year morbidity and 1.70 for 2-year mortality for all fully randomized, controlled trials.

The potential benefit of psychoactive agents, such as selective serotonin reuptake inhibitors, traditional cardioprotective agents (\(\beta\)-adrenergic blockers, angiotensin-converting enzyme inhibitors, antiplatelets, and anticoagulants), or vasoactive agents (calcium channel blockers and nitrates), on the excess morbidity and mortality in coronary patients with psychosocial risk factors has not been specifically evaluated. The National Institutes of Health has recently embarked on a large, multicenter trial—Enhancing Recovery in Coronary Heart Disease or ENRICHD; the intent is to randomize 3,000 patients who had had myocardial infarction to usual care versus psychosocial intervention that would include the use of selective serotonin reuptake inhibitors if 6 weeks of counseling failed to resolve depression. In addition, at least one other multicenter trial is being planned by the pharmaceutical industry to evaluate the benefits of a selective serotonin reuptake inhibitor on the coronary recurrence rate in patients with depression after myocardial infarction.

Recommendations.—In this brief discussion of the topic of psychosocial risk factors in coronary patients, especially those who have had myocardial infarction, recommendations for current practice should be addressed. Clearly, the theory that psychosocial risk factors constitute a tangible problem for coronary patients has been well established in the literature. Although many potential types of evaluation of psychosocial risk are available, a self-report inventory is probably sufficient to identify a subgroup at high risk. Various types of self-report inventories are available, including the SCL-90-R that is used in psychosocial screening procedures at Mayo. Screening should probably be done as early as possible after the acute event, either just before dismissal or early in the outpatient rehabilitation program, inasmuch as our own and other studies have shown that the divergence in recurrent events between distressed and nondistressed patients begins almost immediately after dismissal from the index hospitalization. The data on intervention do not currently favor one strategy over another. In fact, they are instead suggestive of a “Hawthorne effect,” in that any sincere attempt at reducing distress in these high-risk patients seems to result in a favorable influence on their recurrent event rates. Thus, the intervention used in a particular clinical setting may, at least for the present, best be determined by available resources. Small rehabilitation programs may be
limited to individualized treatment—referral to psychiatry, psychology, or social work assistance or perhaps just extra attention and care from nursing, if that is the only resource readily available. Larger programs may be able to use groups to reduce the cost and resource utilization for dealing with psychosocial risk factors. In areas where cardiac rehabilitation programs do not exist or in cases in which patients are unable or unwilling to participate, individual physicians will have to assume responsibility for screening and intervention for this important component of secondary prevention. Just as cigarette smoking and hyperlipidemia must be addressed in the coronary patient, likewise depression and other manifestations of heightened distress should be evaluated and treated. Whether selective serotonin reuptake inhibitors will become the “magic potion” for treating psychosocial risk in coronary disease, as hydroxymethylglutaryl-coenzyme A reductase inhibitors have become for treating hyperlipidemia, remains to be demonstrated. Until such data are available, we can at least rely on conventional group and individual therapy for these patients.

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REFERENCES