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## Routine Screening for Depression in Patients with Coronary Heart Disease: Never Mind

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### Abstract

A recent Science Advisory from the American Heart Association (AHA) recommended routine screening of all patients with coronary heart disease (CHD) for depression. The authors of the advisory noted that the high prevalence of depression in patients with CHD supports this strategy. A systematic review of the evidence on depression screening and treatment in CHD patients published soon after the AHA advisory found that screening tools for major depression are reasonably accurate among patients with CHD, but that the majority of patients who screen positive will not have major depression; that depression treatment in CHD patients only accounts for a small amount of variance in depression symptom change scores; and that there is no evidence that screening for depression improves CHD outcomes. We call for the AHA to re-assess their recommendations in light of this systematic review and considering the potential impact of their document on clinical practice.

### Keywords

Depression; Screening; Guidelines

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“What is all this fuss I hear about the American Heart Association recommending screening depressed people for heart disease?”

We can imagine Emily Litella, the character played by the late Gilda Radner on the American comedy program *Saturday Night Live* in the late 1970s, looking through her reading glasses, and commenting on this news item from the American Heart Association (AHA) (1). The character of Emily Litella was a hard-of-hearing elderly woman, frumpily dressed, who provided commentary, typically in an agitated fashion, on some news item that either excited

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or upset her. Emily Litella always seemed to misunderstand some aspect of the news item with outrageously funny consequences, each time leading her to turn to the audience and meekly offer her trademark response, “Never mind.”

We can almost hear Emily commenting animatedly, sitting at the news desk looking at the camera straight on: “It’s about time. Finally, the AHA recognized that patients with major depression are at increased risk of developing coronary heart disease (CHD) and called for screening of all depressed patients for CHD and cardiovascular risk factors.” Emily would continue her thoughts about why this recommendation makes good sense. “CHD is quite common in patients with major depression. Among 4,041 patients with major depression in the STAR\*D study, 14.3% had comorbid cardiac disease (2). Three separate publications (3, 4,5) found that depressed individuals are more than 1.6 times as likely to develop CHD compared to individuals without depression. Individuals with depression are more likely to smoke cigarettes (6) and be physically inactive (7) compared to those without depression. It also appears that enhanced platelet activation in depressed patients may increase their susceptibility to cardiac events (5). Some have suggested that chronic dysregulation of the hypothalamic-pituitary-adrenal axis found in patients with depression may lead to the development of cardiovascular risk factors and an increased susceptibility to cardiac disease (8). Whatever the cause, the prevalence and importance of CHD in patients with major depression are reason enough for the AHA to finally call for routine screening for CHD in depressed patients. I hope that psychiatrists and primary care physicians who treat depression get on the ball and make sure that all of their depressed patients get screening for heart disease.”

At this point, the news anchor would interrupt Emily and note that she got it backward: the AHA actually did not recommend screening depressed people for heart disease, but rather recommended screening all heart disease patients for depression (1). Deflated, Emily Litella would look at the camera and say, “Never mind.” And we want to say the same about the AHA’s call for routine screening for depression in patients with CHD. Never mind....at least not yet. The recent call for routine screening for depression in patients with CHD is premature and not supported by existing evidence.

So how could it be that we, a group of people who have been calling for cardiologists to pay more attention to depression, are now saying, “Never mind?” To some extent, the AHA workgroup recommendation represents a call for greater attention to depression in patients with heart disease. And in that regard, nothing could make us happier. It shows just how far this field has come in the last 15 years or so. But greater attention and routine screening are two different things. Providing good clinical care by talking to patients and, when appropriate, discussing whether they have symptoms of depression that might benefit from treatment is different from routinely screening all CHD patients using questionnaires or surveys. Several factors must apply for screening to be a reasonable strategy, but the principal criterion is that there must be sufficient evidence that the benefits from screening substantially outweigh potential harms (9). There is simply insufficient evidence that this criterion has been met yet with respect to depression screening in CHD patients.

Lichtman, et al. (1) rationalize their call for routine screening primarily by noting that depression is important and prevalent in patients with CHD. While these are necessary criteria to recommend screening, they are not sufficient. If that were all that were needed, we would screen all CHD patients for aortic dissection or pulmonary embolism (important), for diverticular disease (common) or for carotid stenosis (important and common). A disappointing aspect of the call for routine screening by Lichtman, et al. (1) is that they seem to lump together the desire to generate “increased awareness” of depression and depression screening. The authors note, “In summary, the high prevalence of depression in patients with CHD supports a strategy of increased awareness and screening for depression in patients with CHD” (p. 1771).

However, being more aware of a condition is not the same as routinely screening for it. By becoming familiar with the signs and symptoms of a condition, and by recognizing its prevalence and importance, a clinician may be more likely to diagnose a patient who has that condition. Greater understanding of, familiarity with, and attention to a health problem like depression, however, is quite different from routinely employing a depression screening instrument for all patients.

For routine screening of CHD patients for depression to be recommended, screening instruments must be sufficiently sensitive and specific in patients with CHD so that patients with depression are recognized while at the same time, patients without depression are not inappropriately identified as being depressed. Our recent systematic review (10) found that screening instruments in cardiovascular disease settings perform similarly to instruments in primary care settings (11) (median sensitivity = 84%, median specificity = 79%). We found that there were few instruments or cutoff scores validated in more than one sample, however, and there was evidence that cutoff scores used in primary care may not work equivalently in patients with CHD. Based on the 15% median prevalence of major depression in the screening studies we reviewed, 304 of every 1000 patients would screen positive and need further evaluation, and only 126 (41%) of these would have major depression. The authors of the scientific advisory suggest that “patients with screening scores that indicate a high probability of depression...should be referred for a more comprehensive clinical evaluation by a professional qualified to evaluate and determine a suitable individualized treatment plan” (p. 1770). It is not clear what is meant by “high probability” in this statement, however, since an individual with a positive depression screen in the studies we examined would actually have a greater chance of not having major depression than having this condition.

For screening to improve clinical care, treatment of depression in patients with cardiovascular disease must be delivered effectively, and it would be ideal if treatment of depression would reliably improve cardiovascular disease outcomes as well. Our systematic review of the literature (10) showed that there is evidence that treatment of depression is associated with modest improvement of depression in CHD patients. However, depression treatment in CHD patients only accounts for 1-4% of the variance in depression symptom change scores, and there is no evidence that screening for depression improves CHD outcomes. Lichtman, et al. (1) seem to feel that the absence of demonstrated benefit on CHD outcomes is unimportant. They contend, “Thus whether depression impacts cardiac outcomes directly or indirectly, the need to screen and treat depression is imperative” (p. 1769) (1). And elsewhere, the authors note, “Although there is currently no direct evidence that screening for depression leads to improved outcomes in cardiovascular populations... it is important to assess depression in cardiac patients with the goal of targeting those most in need of treatment and support services” (p. 1770) (1). Again, the authors seem to blur any distinction between assessing depression and routinely screening for it, and they sweep aside the lack of evidence as being unimportant.

For follow-up, Lichtman, et al. (1) indicate, “Patients with positive screening results should be evaluated by a professional qualified in the diagnosis and management of depression” (p. 1771). Given the paucity of evidence showing that this would result in improvement of depressive symptoms and the lack of evidence that it would improve cardiac outcomes, this recommendation must be considered very carefully. Unless cardiologists can become professionals “qualified in the diagnosis and management of depression,” the most likely outcome would be a reliance on referral to primary care physicians, the de facto context for most care for depression. Yet, in primary care, few depressed patients receive an adequate course of treatment, with a majority of those who are prescribed antidepressants discontinuing shortly after these drugs are initiated (12-15). It is estimated that only 20-30% of depressed

persons being treated exclusively in primary care settings receive adequate care and follow-up (16,17), and it is unlikely that the situation would be better in cardiovascular disease settings.

For routine screening to be recommended, there must be sufficient evidence that it does not lead to significant harms that outweigh potential benefits. And here, we are operating in a black box with respect to routine depression screening in patients with CHD. Whether routine depression screening of patients with CHD might lead to inappropriate labeling and treatment on the one hand, or to extraordinary and impractical overuse of important health care resources to avoid it has not been examined, and the potential for such harm is quite real.

Indeed, the costs of introducing routine screening for depression without additional resources are potentially substantial. At the systems level, routine screening may divert existing mental health resources away from what already results in less than adequate care and follow-up of patients with depression and cardiovascular disease (16,17). Arguably, the quality of routine care should be substantially improved before undertaking initiatives that may result in the entry of more patients into the pipeline. Furthermore, without sufficient mental health resources to ensure adequate care and follow-up, cardiologists may begin patients on antidepressants simply on the basis of a positive depression screen, believing that scores on screening instruments like the PHQ-9 are sufficient for clinical decision-making (18). Practices like this may result in labeling patients as depressed when they do not have this condition, and in their being unnecessarily exposed to the risks of antidepressant medications without the potential of benefit. It should be noted that already in some populations, the prevalence of antidepressant prescriptions equals or exceeds the presumed prevalence of major depression (19,20), even when the majority of patients who actually have depression are untreated (21). Inappropriate labeling and treatment may result in an increased risk of stigma, which has been observed to be associated with greater unmet mental healthcare needs rather than increasing the chance that patients will receive and benefit from treatment (22-24).

Guidelines and recommendations are sometimes made without full consideration of evidence or clinical practice realities. For instance, even highly conservative estimates have found that primary care physicians would need more than 7 hours per working day to provide recommended preventive services to an average patient panel (25). With depression screening in cardiovascular care settings, we have a group of physicians (cardiologists) who generally have neither the expertise nor the time to screen or handle the results of screening and a system ill-prepared to guarantee completion of, or referral to, effective care. If AHA calls for screening for depression are not simply ignored, implementation of routine screening may result in overtreatment of depression due to the prescription of antidepressants based on positive screens without follow-up diagnostic interviews on the one hand, and inadequate treatment of CHD patients with major depression on the other.

The U.S. Preventive Services Task Force (USPSTF) makes recommendations about screening for conditions like high blood pressure and asymptomatic carotid artery stenosis that might otherwise not be recognized as part of usual care. It is useful to look at how the USPSTF handles these two conditions, both of which are unquestionably prevalent and important in adults. The USPSTF recently recommended screening for high blood pressure in adults (26) noting that "... certainty is high that the net benefit of screening for high blood pressure in adults is substantial" (p. 783). On the other hand, with respect to screening for carotid artery stenosis in asymptomatic individuals, the USPSTF concluded (27) that there is "...moderate certainty that the benefits of screening do not outweigh the harms" (p. 855). We believe that the AHA workgroup's recommendation for routine screening for depression in patients with CHD is premature because a similarly rigorous assessment of risks and benefits was not done. The AHA workgroup made these recommendations without careful consideration of existing

evidence. Based on our systematic review of the literature (10), evidence of the benefit of this strategy cannot be found... at least not at the present time.

The AHA is an outstanding organization that guides the practice of many cardiologists, and other practitioners, around the world. It is because of this impact that we hope that the AHA reconsiders its recommendation, at least at this time. Recently, the AHA reconsidered its 50-year-old recommendation for antibiotic prophylaxis against infective endocarditis (IE) for patients with certain cardiac conditions, concluding that their own prior guidelines were not based on sufficient evidence (28). The AHA went as far as noting, "Although it has long been assumed that dental procedures may cause IE in patients with underlying cardiac risk factors and that antibiotic prophylaxis is effective, scientific proof is lacking to support these assumptions" (p. 1744). This was a bold move, and one we applaud. Recently, the joint AHA/American College of Cardiology (ACC) guidelines on perioperative cardiovascular evaluation for noncardiac surgery (29) were criticized based on the argument that the recommendation for perioperative beta-blocker therapy is not supported by the current body of evidence (30). It has been pointed out that despite this, the endorsement of the AHA and ACC led the Physicians Consortium for Performance Improvement and the Surgical Care Improvement Project of the American Medical Association to establish perioperative beta-blockade as a quality measure (31), potentially placing practitioners who do not follow the guidelines at increased risk of litigation (30). In their criticism of the AHA/ACA recommendation for perioperative beta-blocker therapy, Messerli and Bangalore (30) referred to the guidelines document itself (29), and suggested that it met neither of its stated criteria that, "guidelines should be based on both rigorous and expert analysis of the available data documenting absolute and relative benefits and risk of those procedures and therapies" (p. 1972) and that "guidelines...improve the effectiveness of care, optimize patient's outcomes, and favorably affect the overall cost of care by focusing resources on the most effective strategies" (p. 1972). This criticism similarly applies to the recent AHA recommendations on depression screening.

Emily Litella might have gotten the AHA's recommendation backwards, but it might not have been a problem with her hearing this time. She might have thought, as we do, that the recommendation for routine screening for depression in CHD patients is premature, and she might have assumed that it was impossible that this is what she actually heard. Indeed, given the incontrovertible evidence that early treatment of patients at risk for CHD improves outcomes, there is almost more reason to consider routine screening for CHD in depressed patients than routine screening for depression in CHD patients, at least at the present time. We call for the AHA to re-assess their recommendations in light of our recent systematic review (10) and considering the potential impact of their document on clinical practice. We suggest that the AHA consider a modified statement, one which emphasizes the importance of depression in patients with cardiovascular disease, raises the awareness of cardiovascular care providers to the symptoms of emotional illness, and suggests the development of closer clinical relationships with mental health providers. The modified statement could indicate the rationale for revising their recent advisory by pointing out the limitations of existing evidence, by noting that the basis for the recommendations of the advisory was not well-established, and by concluding that without additional evidence of the benefit of routine screening, this is as much as can be recommended at this time.

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## ABBREVIATIONS

AHA, American Heart Association; CHD, coronary heart disease; USPSTF, United States Preventive Services Task Force; IE, infective endocarditis; ACC, American College of Cardiology.

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