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**DR. FOSTER AND COLLEAGUES REPLY:** We agree with Dr. Aziz that it is important to distinguish between statistically significant and clinically significant differences in clinical trials. However, previous studies have shown that a weight loss of as little as 5 percent in obese persons — a weight loss similar to that observed in our low-carbohydrate diet group — is associated with considerable clinical benefits.<sup>1</sup>

The fact that the low-carbohydrate and high-carbohydrate (conventional-diet) groups had lost similar amounts of weight at one year allowed us to assess more precisely the relative clinical importance of the two approaches. Our data revealed no significant differences between the groups in total or low-density lipoprotein cholesterol concentrations but significantly greater increases in HDL cholesterol and significantly greater decreases in triglycerides in the low-carbohydrate group than in the high-carbohydrate group.

We agree that there are limitations in interpreting data from studies that have a high attrition rate. The attrition rate (approximately 40 percent at one year) was higher than we typically observe in clinic-based treatments<sup>2</sup> but remarkably low, given the self-help approach used in our study. As Dr. Ware notes in his editorial, the similar pattern of results between analyses in which the base-line value is carried forward and “completers” analyses provides some reassurance that our results were not unduly biased by attrition. Nonetheless, larger studies of longer duration and with less attrition are needed to evaluate fully the efficacy and safety of low-carbohydrate diets as a potential therapy for obesity.

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## Heart Failure

**TO THE EDITOR:** In their article on heart failure (May 15 issue),<sup>1</sup> Jessup and Brozena do not discuss heart transplantation, which has become a mainstay of therapy for patients with end-stage heart disease. Considerable effort on behalf of clinicians and researchers has been directed toward increasing the availability of donor hearts and reducing perioperative morbidity and mortality. For example, the introduction of interleukin-2-receptor antibodies has been associated with a decrease in the frequency of acute rejection.<sup>2</sup> Similarly, it has been shown that ABO-incompatible heart transplantation can be performed safely in infants, thereby markedly reducing mortality among children with end-stage heart disease who are awaiting transplantation.<sup>3</sup> Recent improvements in our understanding of the adaptive changes in the donor heart after transplantation<sup>4,5</sup> may further contribute to a reduction in morbidity.

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**TO THE EDITOR:** Jessup and Brozena did not mention the increasing evidence that treatment with nasal continuous positive airway pressure (CPAP)<sup>1</sup> has been beneficial in patients with heart failure. Studies have already shown that such treatment significantly improves the left ventricular ejection fraction and the quality of life in patients with<sup>2</sup> or without<sup>3</sup> evidence of concomitant sleep-disordered breathing. Use of CPAP for at least four hours overnight has been shown to be beneficial.<sup>3</sup> Randomized, controlled trials involving large numbers of patients and addressing various factors, including but not limited to survival, cost effectiveness, heart size, hospitalizations, and ventricular volumes, are needed to establish the role of CPAP in the treatment algorithm for heart failure.

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**TO THE EDITOR:** Drs. Jessup and Brozena did not discuss the role of anemia in heart failure. Anemia is common in patients with heart failure, and such factors as increased cytokine production, renal insufficiency, and plasma volume overload may contribute to its pathogenesis. It is independently associated with decreased functional capacity, worsening symptoms, and increased mortality.<sup>1,2</sup> Anemia confers a risk of death among patients with heart failure that is inversely correlated with the hematocrit and is equivalent to that associated with other traditional risk factors.<sup>3</sup>

More important, treatment of anemia with erythropoietin in patients with heart failure appears to be beneficial. Such treatment has been shown to increase exercise capacity and peak oxygen consumption.<sup>4</sup> In a small randomized, controlled study, patients treated with erythropoietin in order to raise the hemoglobin level from between 10.5 and 11.0 g per deciliter to at least 12.5 g per deciliter had substantial improvements in the ejection fraction and New York Heart Association class and a reduced hospitalization rate, as compared with controls, de-

spite less diuretic use.<sup>5</sup> Nephrologists have long appreciated the major difference in patients' lives that even a modest increase in hemoglobin can make; maybe it is time for cardiologists to get on board.

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**TO THE EDITOR:** Patients with heart failure may have improvement with adequate therapy, but the syndrome is still associated with a reduced life expectancy. Jessup and Brozena comprehensively discuss various therapeutic approaches, but the content of care in end-stage heart failure is not addressed. Therefore, we want to stress the palliative dimension of care for patients with end-stage heart failure. During their last year of life, most patients have a poorer quality of life because of pain, severe dyspnea, or mental disturbances.<sup>1</sup> Surveys have suggest-

**Table 1. Differences between Heart Failure and Cancer That May Influence Decisions about Palliative Care.**

Factor	Heart Failure	Cancer
Edema	Usual	Rare
Prognosis as perceived by the patient or the caregiver	Serious	Worst
Course of illness	Fluctuating	Progressive
Prognosis	Unpredictable	Predictable
Terminal phase	Unclear	Clear
Morphine use	Rare	Frequent
Sudden death	Frequent	Rare
Do-not-resuscitate order	Rarely discussed or written in charts	Frequently discussed or written in charts

ed that patients with end-stage heart failure who have distressing symptoms are less likely to receive formal palliative care than are patients with cancer who have such symptoms.<sup>2</sup> Differences between patients with heart failure and those with cancer may make decisions about appropriate care more difficult (Table 1). An approach that includes symptom-oriented treatments and better communication about the patient's preferences in case of cardiac arrest should be promoted for patients with end-stage heart failure, just as it is for patients dying from other chronic diseases.<sup>3</sup>

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**THE AUTHORS REPLY:** We are grateful for the comments that further amplify therapeutic alternatives in the management of heart failure. Dr. Eltzschig and colleagues correctly note that heart transplantation is a mainstay of therapy for end-stage heart failure.<sup>1,2</sup> Unfortunately, it is available to only approximately 2000 patients per year in the United States, despite attempts to increase the donor pool.<sup>3</sup> Nevertheless, heart transplantation is an important option and one that we included in Figure 3 of our article, which depicts the stages of heart failure and corresponding treatment. Ideally, the decision about a transplant or a mechanical assist device should be made at a specialized heart-failure center with a multidisciplinary team that would be available to primary care practices.

We, too, have been impressed by the ability of

CPAP to reduce symptoms and improve cardiac function in patients with sleep apnea, as noted by Dr. Rodriguez. It is for this reason that we included sleep apnea as an important pathophysiologic mechanism in heart failure (Tables 1 and 2 of our article) and a common clinical problem (Table 3). We are discouraged, however, by the poor tolerance of currently available nasal CPAP devices in many cases.

Dr. Silver appropriately acknowledges the increased appreciation of the significance of anemia as a prognostic marker in heart failure. Moreover, correction of anemia with erythropoietin can result in a gratifying improvement of symptoms in selected patients. Disappointingly, it is often difficult to obtain approval by third-party payers for the use of erythropoietin for these patients in the absence of severe renal insufficiency. Nevertheless, the identification of anemia from any cause has always been a fundamental aspect of the overall evaluation of patients with heart failure.

Finally, we are in complete agreement with Dr. Schoevaerdt and colleagues about the important contribution of palliative care for the compassionate treatment of patients with refractory heart failure who are not candidates for other specialized treatment approaches. Hospice is the final step in Figure 3 in our review. We feel strongly that hospice care is underused for patients with end-stage heart failure. In our experience, hospice programs have been a valuable resource for patients, their families, and their medical caregivers.

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## Case 16-2003 — Brain Abscess

**TO THE EDITOR:** In Case 16-2003, Friedlander et al. (May 22 issue)<sup>1</sup> provide a comprehensive discussion of a patient who has a ring-enhancing, unilateral brain mass. What is disappointing is the absence

of any mention of mycobacterium. Though relatively uncommon in the United States, tuberculomas are almost always manifested clinically as progressive paresis, with computed tomographic images that