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EDITORIAL COMMENT

Frail Elderly, the Ideal Patients for MitraClip*

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Frailty is a geriatric syndrome of impaired physiological reserve and decreased resistance to stressors (1). Characterized by a constellation of factors, including weakness, slowness, exhaustion, wasting, and low activity level, frailty is a risk factor for morbidity and mortality in a wide variety of situations independent of traditional demographic and clinical risk factors. From pneumonia (2) to myocardial infarction (3), general (4,5) and cardiac surgery (6,7), and even the less invasive procedure of transcatheter aortic valve replacement (8–10), a diagnosis of frailty increases the risk of mortality after nearly any intervention (11) or clinical insult. Furthermore, frailty increases the risk of failure to recover quality of life and functional status (10,12). An assessment of frailty has therefore been recommended for risk stratification before surgical intervention in elderly patients (10,11,13), but can be cumbersome and time-consuming, particularly when dealing with hospitalized patients. Although frailty assessments can be beneficial to manage patients' expectations for recovery, they are particularly important when they alter management. For example, an assessment may identify a patient as frail who would benefit from a less invasive approach to the treatment of their disease (e.g., multivessel coronary stenting or transcatheter aortic valve replacement instead of cardiac surgery). Or, it may identify patients who may benefit from pre-habilitation, early mobilization after intervention, or post-operative cardiac rehabilitation to help the patient recover his or her functional status and preserve independence.

Matze et al. (14) present their analysis where they performed a frailty assessment on 213 patients who were admitted for a MitraClip procedure at a single center in Germany. They found that frailty was present in nearly one-half of patients and also associated with an increased hazard of short- and long-term mortality, independent of demographic and clinical risk factors. These results were not surprising, because: 1) the MitraClip procedure is a procedure that is targeted at frail elderly patients who are not candidates for mitral valve surgery; and 2) frailty is associated with short- and long-term mortality in nearly every clinical scenario. The proportion of patients treated with a MitraClip who met criteria for frailty on the basis of standards set for community-dwelling elderly, although high, was perhaps not as high as expected. In patients with severe aortic stenosis and high surgical risk who were treated with transcatheter aortic valve replacement (a procedure that is more invasive than that of a MitraClip), 60% of patients met similar criteria for frailty (12). In these elderly patients who are felt to be at high surgical risk, the prevalence of frailty should be exceedingly high. Particularly in the case of mitral valve disease, patients who are not frail may, in fact, be better served by traditional cardiac surgery with more definitive treatment of the valve (at least in the case of degenerative mitral regurgitation). In this way, the assessment of frailty may help identify nonfrail patients who should have cardiac surgery instead of the MitraClip procedure.

Although the prevalence of frailty in this sample of patients treated with the MitraClip is not alarming (and may actually be on the low side), what is notable in this analysis is that frailty did not affect the technical success nor the quality-of-life benefits of the procedure. In fact, frail patients were more likely than

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nonfrail patients to have a clinically relevant improvement in quality of life at 6 weeks after the MitraClip procedure. Much of this was driven by the fact that frail patients were more symptomatic and had substantially worse quality of life before the procedure and therefore had more to gain from mitral valve repair. However, it is reassuring that the procedure seemed to benefit the majority of patients, regardless of frailty status. For a procedure that's primary goal is to improve quality of life and is targeted at frail elderly patients, these findings support the continued of use of MitraClip in this vulnerable population. Although the long-term survival of these frail patients is limited, palliative measures targeted at improvement in quality of life and functional status are still indicated.

The MitraClip procedure is a means to repair the mitral valve with little perioperative risk, but the results are suboptimal compared with traditional cardiac surgery (15). As such, this procedure should be limited primarily to patients who are not candidates for more definitive treatment of their mitral regurgitation (16) (or, perhaps, in high-risk patients with functional mitral regurgitation). Frailty is a key reason to elect for a less invasive treatment option, and assessment of this may help determine which patients are ideal candidates for open mitral valve repair versus MitraClip. Results from Matze et al. (14) suggest that although long-term survival is limited in frail patients, the MitraClip procedure can be done with technical success and can result in substantial improvement in quality of life. Although these data should be examined in a larger, multicenter study, they suggest that targeting the MitraClip procedure to frail patients can be an effective strategy to improve symptoms and quality of life with low perioperative risk.

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