Assessing Risks and Benefits of Invasive Cardiac Procedures in Patients with Advanced Multimorbidity

Ariela R. Orkaby, MD[a,b], Daniel E. Forman, MD[c,d,*]

KEYWORDS

• Geriatrics • Cardiology • Multimorbidity • Preoperative assessment

KEY POINTS

- Older adults with multimorbidity face increased challenges in choosing to pursue an invasive cardiovascular procedure because their cardiac disease is only one of many concurrent diseases.
- In older adults, it is often less certain that an invasive cardiac intervention will lead to improvements in symptoms or function because concurrent illnesses or geriatric syndromes may be the principal determinants of the symptoms.
- Concurrent illnesses or geriatric syndromes in old age are more likely to complicate invasive procedures and lead to outcomes that are worse than expected.
- Assessing geriatric syndromes as part of the preoperative assessment provides opportunities to prevent complications, such as delirium and functional decline.
- Understanding what the patient hopes to achieve from the intervention, such as life prolongation versus alleviation of symptoms, is integral to the ideal of shared decision making.

Mr S is an 84-year-old widowed man who lives independently in the community. He presents after being scheduled for an urgent preoperative assessment before a transcatheter aortic replacement (TAVR), scheduled for the coming week. Mr S has had a series of recent falls; his cardiologist attributed the falls to aortic stenosis (AS) and immediately scheduled a TAVR as a way to overcome the falls and also to help Mr S live longer.

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[a] Division of Cardiology, VA Boston Healthcare System, 400 Veterans of Foreign Wars Pkwy, West Roxbury, MA 02132, USA; [b] Division of Aging, Brigham & Women's Hospital, 1620 Tremont Street, Boston, MA 02120, USA; [c] Section of Geriatric Cardiology, University of Pittsburgh Medical Center, 3471 Fifth Avenue, Suite 500, Pittsburgh, PA 15213, USA; [d] Geriatric Research, Education, and Clinical Center, VA Pittsburgh Healthcare System, University Dr C, Pittsburgh, PA 15240, USA
* Corresponding author. Section of Geriatric Cardiology, University of Pittsburgh Medical Center, 3471 Fifth Avenue, Suite 500, Pittsburgh, PA 15213.
E-mail address: formand@pitt.edu

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Mr S has been followed by this cardiologist for many years for what initially presented as moderate AS. He also has a past medical history of coronary artery disease (CAD; coronary artery bypass grafting [CABG] in his 70s), myelodysplasia, degenerative joint disease of the right hip, benign prostatic hypertrophy, and chronic kidney disease. Over the past few months he had three falls. In two, there were no significant injuries, but the last one resulted in a rotator cuff strain. Mr S is unable to give many details regarding any of the falls; he states he has "no clear memory." However, he emphasizes that the hip causes lots of pain and as a result he has been stumbling frequently. He wears a life-alert line, which he has never used. He has become increasingly sedentary and anxious, with worsening sleep and appetite. His body mass index is 27, he has lost 3 pounds in 3 months, is relying increasingly on his daughter for shopping, and is having more difficulty with self-care.

After the third fall Mr S was evaluated in the emergency department for his shoulder injury. The emergency room doctor said he probably fell because of hip degenerative joint disease and that he would be better off using a wheelchair. This made Mr S very distressed, especially in the broader context of escalating hip pain, declining mobility, and lack of independence. He confided in his daughter that living like this was "just not worth it anymore," and she became concerned about his well-being and safety. On her advice he returned to the cardiologist.

As part of the cardiologist's assessment, an echocardiogram was performed. Whereas his last echo in 2013 showed aortic valve diameter of 1.2 cm, it was now 1.0 cm. The current echo also showed mean aortic valve gradient of 42 mm Hg and peak gradient of 63 mm Hg. The cardiologist concluded that his falls were caused by syncope from progressing AS, and could be alleviated by a TAVR.

Mr S says he is willing to proceed based mostly on the fact that cardiologist seemed so certain and reassuring. His daughter also urged him to undergo the procedure. Still, he states that he is skeptical TAVR will fix the problem, particularly because he has no symptoms that convince him it is the heart, including no chest pain, shortness of breath, or palpitations. He says that he only really wants his hip to be replaced.

How should the physician approach the decision-making process with regard to Mr S's AS?

THE ALLURE OF SURGERY AND ITS LIMITATIONS IN THE CONTEXT OF MULTIMORBIDITY

With the advent of modern medicine, the ability to "fix" has become a mainstay of clinical practice and an expectation from patients. Nowhere is this clearer than in surgery and surgery-like catheter interventions. From the days of Joseph Lister and the introduction of the sterile technique to modern technological advances, surgery has become progressively safer and is commonly considered the ultimate definitive therapy.

A driving aspect of the professional culture of surgeons and cardiologists is emphasis on and value ascribed to new techniques and innovations as key components of caregiving excellence.[1] Such ethos and investment has contributed to the exponential rise of scope-based, robotic and microscopic interventions that characterize Western medicine. Progressive improvements in cardiopulmonary bypass pumps, minimally invasive options, hemostasis, anesthesia, and procedure time have added to the tolerability, success, and allure of invasive options.[2,3] Increased portability has also been relevant, as surgical options have moved out of tertiary centers, and become progressively more available in local hospitals and even in outpatient offices.