Activity restrictions and recovery after open chest surgery: understanding the patient's perspective

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The Indiana man was a fine horseman who treasured his horses—they were almost like family to him. Then he had surgery to repair an aortic aneurysm. One of his physicians told him that he could never ride again and that he should sell his horses. Fearful of jeopardizing his life and not knowing what else to do, the man complied, but doing so plunged him into a depression that lifted only when he was well enough to see that the physician's advice was wrong. He now owns and rides horses again.

Cardiac surgery patients at a major Texas hospital are told on discharge not to lift anything heavier than a half-gallon of milk (about 4 pounds). The door to the cardiac rehabilitation facility in the same hospital requires a 14-pound pull to open, yet no patients have died or have even been injured from opening this door.

Do the activity restrictions that patients are given after major surgery affect their recovery? Can the activity restrictions increase the risk of morbidity? Can bad advice kill a patient who has just had a successful surgical procedure?

These provocative questions are not merely theoretical; to us they are deeply personal. I (RDP) am an electrical engineer and physicist who in 2003 underwent an emergent repair of a Stanford type A dissection of the ascending aorta. Since my recovery, I have corresponded with other survivors of aortic events via a Web site. My coauthor, Dr. Adams, is an exercise physiologist and senior research associate; we worked together on the design and analysis of an experiment to improve rehabilitation of cardiac surgery patients. Through this unique combination of personal and professional experiences, we have seen that current activity guidelines often fall short. In this article, we explore possible reasons for these deficiencies and their consequences, provide examples of helpful and unhelpful advice, and offer suggestions for improving the content and delivery of postsurgical guidance.

WHY ACTIVITY RESTRICTIONS MATTER

Suboptimal medical outcomes sometimes occur with patients who have had completely successful cardiac surgery. The patient may recover more slowly, have trouble resuming the activities of daily living (ADL), and have trouble going back to his or her presurgical life and occupation. In the extreme case, the patient may die. When it became clear that the difference in outcomes was not always the result of the particular patient's illness or the quality of the medical care provided, researchers began to look at psychological causes. The resulting studies have linked factors such as depression and anxiety to the observed suboptimal outcomes. In patients who had undergone coronary artery bypass grafting (CABG), depression and anxiety were associated with higher hospital readmission rates (1), and depression predicted an increased risk of death (2). The unaddressed question is this: Why do patients who have had a successful surgical procedure end up feeling depressed or anxious?

We suggest that in some cases medical professionals can unintentionally contribute to patients' anxiety and depression by giving postsurgical activity instructions that are inadequate, overly restrictive, or even flippant. The reasons for these unfortunate interactions are varied. Physicians, surgeons, and nurses are very busy at what many regard as their primary job—diagnosing and treating difficult illness. They know how to give postsurgical instructions about medications and wound care, which are obviously important aspects of clinical care. However, they may not have the training, the skill set, or the inclination to deal constructively with the patient's postsurgical psychological needs. Most likely, they are unaware of the harm that can result from ill-considered comments.

We have seen numerous examples, some tragic, of the consequences of inadequate postsurgical guidance. In response, we propose a change in the content and delivery of activity guidelines, with the goal of getting patients back to their presurgical life as soon as possible. We believe that through minor changes in how patients are treated after surgery, physicians and other clinicians can strengthen, rather than damage, patients' psychological well-being and improve their recovery.

THE TYPICAL PATIENT

To demonstrate why improved postsurgical instructions might strengthen psychological well-being, allow us to introduce

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a typical patient. The composite presented here is compiled from a series of interviews of patients and families of patients who have undergone open chest surgery.

Our patient is a middle-aged or elderly man who has never been hospitalized for a serious condition. He receives a diagnosis that requires immediate open chest surgery—CABG, valve replacement, or aortic aneurysm repair.

In an instant, he is enmeshed in the "medical machine." He is transported, perhaps by ambulance or medical evacuation helicopter, to a hospital that may be several hundred miles from his home. He finds himself in a hospital room, signing a consent form while the anesthesia team waits impatiently in the corridor. His wife and family are upset, having been told that he may die that day. He then has major and incredibly invasive surgery.

His surgery is successful. Thanks to modern technology and highly skilled, well-trained physicians, surgeons, nurses, and other medical personnel, he survives a condition that may well have killed him only a few years before. He is discharged after about 3 days in intensive care and 4 more in a semiprivate room in the cardiac monitoring unit.

When he is discharged, in pain and full of medication, he is handed detailed written instructions about his medications, diet, and wound care. But he is given only a couple of minutes of casual verbal advice about how to resume ADL and his presurgical life, and this advice is severely limiting. He is told, "Don't lift anything heavier than a thought" or "Don't lift anything heavier than a fork," advice that applies only to the condition he is in at that moment, with an incision and a median sternotomy, neither of which is healed.

He is in awe of the medical establishment and overwhelmed by his experience. He is too afraid, too rushed, or too medicated to ask useful questions or to understand complex verbal directions. His terrified wife is even less likely to ask useful questions: a few days earlier, she thought he might die. Since then, she has seen him in intensive care, unconscious or barely conscious and in pain.

He does not go to cardiac rehabilitation (only 23.4% of male CABG patients younger than 65 go [3]; the percentage is smaller for older or female patients and even smaller for patients with aortic aneurysm repair or valve replacement). He has a 25% to 40% probability of having posttraumatic stress disorder (4–7) and about the equivalent probability of having serious white-coat hypertension (8, 9), both of which deter him from further involvement with the medical community and increase his risk of complications (10).

He sees his surgeon once about 4 weeks after discharge and again 6 months after discharge. At other times, and from then on, he sees a different physician (perhaps a cardiologist, but more likely a family practitioner) who is probably in a different town, far from the hospital where his surgery was performed. These physicians give him inconsistent advice and direction. His activity restrictions are not updated unless he demands it, and even then he typically gets nothing more concrete than "take it easy," which confuses many patients and may limit their return to their presurgical activities (11).

This man's life has been completely disrupted and rearranged. He has survived a major life-threatening condition, but he has little or no guidance about how to go on from here. His body does things that he does not expect and was not warned about; he does not know whether these symptoms are normal and to be expected or indicate a looming catastrophe. He was told not to do anything physical, effectively not to resume his life, but he lacks any kind of plan. And he has no one to offer reasonable, practical responses to his questions.

THE MENTAL SIDE OF RECOVERY

Psychologically driven suboptimal recovery from open chest surgery usually has either depression or anxiety as the primary component.

A comprehensive study at Duke University Medical Center followed 817 patients and found that patients who became even mildly depressed after surgery but had no other risk factors had twice the risk of dying compared with patients who were not depressed but had both diabetes and coronary artery disease as pre-existing risk factors (2). Other studies give similar results (12). A long-term European study of patients who were anxious gave essentially the same results—postsurgical anxiety doubled the rate of complication and morbidity (13).

But the question remains: Why does this happen? Why do some patients who have had successful surgery develop depression or anxiety that leads to increased morbidity and mortality? We suggest that giving patients discouraging, highly limiting, or nonactionable advice or restrictions can negatively affect their self-efficacy, or their belief in their ability to plan and act in ways needed to achieve desired results (14). When facing a task, those who have a strong sense of self-efficacy are more likely to attempt the task, put more effort into it, and persist when difficulties arise. Positive statements from someone believed to be credible and competent can bolster an individual's self-efficacy (15).

In contrast, patients who are told by a respected physician not to lift more than a fork may interpret this advice as "don't move at all," feel pessimistic about their recovery, and avoid efforts to resume ADL or return to work. (Dr. Adams has witnessed such responses many times.) Investigators have found that patients who are pessimistic tend to have more anxiety and depression (16), which can in turn lead to reduced potential for improvements in functional ability (17). Others have shown that functional impairment (reflected in basic or instrumental ADL, for example) is oftentimes associated with higher levels of depressive symptoms (18).

THE COST OF NOT SUPPORTING THE PATIENT

The most important aspect of suboptimal outcomes is the damage to patients' lives and those of their families, but there are financial consequences as well. Having highly trained medical personnel perform a complex and costly repair (as much as $84,000 for CABG [19]) is not a good use of medical resources if the patient then fails to recover for a preventable reason.

Patients who are depressed or anxious and therefore have suboptimal recoveries but do not die have postsurgical medical

costs (and therefore increased utilization) two to three times greater than patients with a normal recovery (20). Thus, in terms of both cost and utilization, it is beneficial to manage the mental part of the recovery.

WHAT PATIENTS HEAR

We have collected representative instructions, restrictions, and comments that patients report having been given by their physicians or other medical professionals after surgery. These responses were collected from patients who had undergone open chest surgery for CABG or for aortic aneurysm repair. The respondents had written their stories for the Web, meaning that they are a select subgroup of patients: computer-literate people who can actively seek advice—and question it. Thus, this "survey" is in no way scientific, but it provides some insights.

The patients were asked, "What advice were you given post-surgery about resuming the activities of normal daily living?" Thirty-four patients gave 40 comments. Of the comments, 33 (82.5%) described advice that was vague, very restrictive, or not actionable or that prohibited a key element of the patient's pre-surgical life. The remaining seven comments (17.5%) described advice that was actionable and helpful to the patient.

Here are examples of unhelpful advice or restrictions:

- "No recovery plan was laid out for me. I felt almost like I was a number instead of a patient."
- "I was never given any advice about restrictions."
- "When I've tried to pin my doctors down on some specifics, they have squirmed and told me just to use common sense."
- "When I ask questions about my condition, they say 'you survived the "main event," so just be happy and live your life.'"
- "I had never even heard the words 'aneurysm,' 'mechanical valve,' Coumadin, etc., and all of a sudden I was all that. I couldn't get any details about what had happened to me and what I could expect next."
- "At the time of my release, I was given a short 5-minute talk about what I shouldn't do, and the time was quickly over though I had many more questions to ask."
- "My original surgeon told me, at my 1-month follow-up, that I should be able to do everything I did before such as horseback riding and lifting bales of hay. Upon my 3-month checkup I saw a different doctor who was part of the original team and he said no to riding and lifting over 40 lbs. So one says one thing and another says different. I sold my horses."
- "I have a descending aortic dissection and a true and false lumen (after ascending aortic aneurysm repair). My surgeon at the first postoperative visit said my aorta was like a car with bald tires. . . . This analogy left me with a funny feeling, especially when coupled with his other comments like, 'Take a year off and enjoy your family.'"
- "[I was told:] 'We don't really know what to do with you in cardiac rehab. We've never had anyone here who survived what you survived.'"
- "I was told by my doctors that I would never be able to cycle again. Cycling was a huge part of my life. I was seriously depressed over that."
- "[I was told:] 'Don't lift anything heavier than a fork.'"

Most of the comments categorized as unhelpful are only restrictive—they lack emphasis on returning to presurgical life or contain no actionable advice. In addition, we contend that they are dangerous in that they can weaken self-efficacy and reduce functional ability, leading to depression and suboptimal outcomes.

Here are examples of helpful advice:

- "I was in good physical shape, and the surgeon said I could keep doing the physical activity I had done after the recuperation period."
- "At a subsequent meeting with a health-exercise specialist, my lifting restrictions were updated. The specialist also said not to lift to the point where I grunt and turn red in the face. More recently, my cardiologist has also updated the advice."

The most striking finding from the survey is that over 80% of the patients' comments were about having their questions dismissed unanswered, receiving vague advice, or not receiving advice that they would characterize as useful for resuming their presurgical lives. Fewer than 20% of the comments were about receiving complete, useful advice or advice that was updated as patients recovered.

We believe that providing patients with a plan that allows them to resume a level of presurgical activity consistent with their illness would greatly improve outcomes. Telling a horseman that he has to give up riding and sell his horses is one answer, but it may trigger depression and a suboptimal outcome. Giving the horseman a plan to resume riding in a safe way is a much better answer.

WHAT PATIENTS NEED

Our hypothesis—which still needs to be tested—is that after open chest surgery, patients need information and support to resume their presurgical lives. Our limited survey and the literature confirm that they often lack the information they need to reach that goal and thus recover successfully. In fact, patients are often discouraged by the very professionals who have worked so hard to save their lives (21).

It is important to remember that patients respect and admire the physician and are dismayed when their obvious (to them, at least) needs are neglected. For this reason alone, it is vital that patients view their physicians as being responsive and encouraging.

Among the patients we interviewed, those who were the happiest and seemed to have the best recoveries were those who were offered the following:

- Cardiac rehabilitation, when appropriate.
- A written summary of the procedures that were performed on them, including notes about both normal and unusual symptoms that may occur during the initial recovery period. Alternatively, a follow-up visit with the surgeon could be used to provide information and answer the patient's questions.

- Written instructions about how to resume presurgical life, including activity restrictions adjusted to the timeline of their progress.
- Consistent, actionable advice from all their health care providers, along with contact information for a person who can resolve apparent discrepancies in advice and answer questions about specific symptoms.

Upon discharge after open chest surgery, most patients receive a visit and written instructions from a dietitian; a visit and written instructions from a wound care specialist; written instructions about drugs (and the prescriptions for them); written instructions about follow-up physician visits; and follow-up home nursing visits to ensure that they are taking their medications and that their incision is healing properly. But what is missing from this list are encouragement, a way to ask questions that does not involve a physician visit, and an activity plan to help the patient resume his or her presurgical life.

Encouragement and information

Encouragement and the management of postdischarge issues are the physician's responsibility and are expected by the patient as part of the physician's role. The physician must realize that the patient and his family have been through a life-altering experience and are unsure of their future. In our view, the physician's encouragement that the patient will indeed recover is a key component of a successful outcome. The physician is also best qualified to determine whether a referral to a psychologist is necessary to manage the patient's fears and doubts.

Providing a way for the patient to ask questions is very straightforward. Many medical insurance companies offer access to a nurse practitioner who is trained in answering patients' questions after complex major surgeries. The hospital or physician may already have access to this resource, and offering it to patients and their families would both improve recovery for some patients and reduce the physician's or surgeon's workload.

Personalized activity guidelines

An effective solution to the challenge of how to help patients resume presurgical life is to consider a fundamental change in the content and delivery of activity discharge instructions. Historically, a physician or nurse has delivered verbal activity guidelines in the hospital setting; however, time constraints during the discharge process and a lack of expertise in exercise prescription severely limit the discussion. As a result, the most restrictive instructions are usually given: "Don't lift anything heavier than a fork." Although the intent is to keep patients safe and prevent postsurgical complications, we argue that such advice can do more harm than good.

A better plan is to have a clinical exercise specialist meet with each patient prior to discharge. The clinical exercise specialist has the time and knowledge to appropriately prescribe activity guidelines that are specific to each patient's needs and adjusted as the patient's recovery progresses. Ideally, these guidelines would be reinforced by a concise, visually oriented handout that the patient could refer to at home. Studies have shown that this type of material is much easier to understand, and patients therefore comply more completely and readily with the advice offered (22). This interaction would be similar to the nutritional counseling given to many patients or the exercise counseling provided after orthopedic surgeries. We believe that making the exercise specialist part of the discharge education team and offering easy-to-understand support material would result in better care for patients recovering from open chest surgery.

CONCLUSION

Our experience has suggested that inadequate or badly targeted postsurgical guidance can have negative psychological effects that can lead to suboptimal outcomes. Further research is needed on a number of related issues, such as better understanding why depression occurs after CABG and scientifically testing whether additional exercise-related counseling and more extensive follow-up after surgery would result in better outcomes. We would also like to invite discussion on why surgeons traditionally limit activity to the degree that they do.

We propose that after open chest surgery, patients need 1) written information about their surgery and its aftereffects, 2) consistent advice and a way to ask questions that does not involve a physician visit, and 3) personalized activity guidelines developed by an exercise specialist to help them resume their presurgical lives. A small change in care delivery may lead to a big improvement in results.

Acknowledgments

Beverly Peters, MA, ELS, edited the manuscript and was compensated through a grant from the Cardiovascular Research Review Committee in cooperation with the Baylor Heart and Vascular Institute. The authors would like to thank the committee for their encouragement and support of cardiovascular rehabilitation research projects.

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