

Coronary Artery Bypass: A User's Manual

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What happens when the coronary artery bypass patient is the cardiologist—a cardiologist who has taken care of hundreds of patients with the disease that now confronts him? The story that follows is a cautionary tale. Joseph Perloff tells the first part himself, but hazy memory immediately after the operation makes it incumbent for someone else—in this case the physician's wife, who was taking care of him—to flesh out the story. The patient's own impressions follow.

THE PERSPECTIVE OF THE PHYSICIAN/PATIENT

Coronary artery bypass surgery today has an air of the unreal: the results seem miraculous, and indeed they are. Advances in the heart/lung machine permit the duration of surgery to be extended so that every detail can be addressed, so that nothing is left unattended.

Arteries as well as veins are now used to bypass coronary artery obstructions, permitting higher patency rates and virtually complete restoration of myocardial blood flow.

In contrast, preoperative diagnosis and postoperative management are often surprisingly old fashioned and inexact. My own case would have been quite different had the coronary artery disease been properly diagnosed. As it was, my surgical "cure" depended more on luck than on thoughtful medical management—management by physicians who attended me and by my own unsettling lack of self-awareness. I think readers might profit from my story—one with a largely happy ending but that was physically and emotionally painful along the way. A question this editorial poses is: must it be this way? And, if not, what can be done? How representative is my experience? What is the effect of advanced age (I am 79) on tolerance to such a lengthy and complex operation? My surgery lasted 6.5 hours, which was 1.5 hours longer than the average bypass operation either at my age or in younger patients. What are the symptomatic sequelae of deep prolonged anesthesia? Of deep prolonged hypothermia? Published accounts of morbidity typically focus on specific postoperative complications, such as bleeding or infection, or complications involving the kidneys, gastrointestinal tract, or central nervous system. There is virtually no mention of mor-

bidity in the form of fatigue, weakness, insomnia, hiccoughs, inability to adjust to ambient temperature, and there is all too scant mention of depression and anxiety. For these morbidities, I was wholly unprepared.

At 3 A.M. on December 16th, I awakened with a sensation of heaviness in the center of my chest. Because the heaviness persisted, I told Marjorie to call 911. I then witnessed a remarkable sequence of events that represented contemporary medicine at its best. Within minutes, paramedics rang the door bell. I was placed on a stretcher, given oxygen, and put into an ambulance. Marjorie followed in her car.

The UCLA emergency room was cold, drafty, and strangely unfamiliar from my perspective as a patient lying on a stretcher flat on his back. The countless times that I had walked into that same emergency room day or night to see other patients should have made every nook and cranny familiar. But now it was a frighteningly forbidding environment. An excited house officer, who knew me by reputation in his native India, hovered over my bed, insisting that it was such an honor to treat me that he would record the event in his autobiography.

I read—misread—my electrocardiogram as normal: wishful thinking! Esophageal spasm, I told myself. The house officer did not question my reading, assuming I knew as I was an expert. The electrocardiogram was in fact ambiguous—what is called in the trade "nondiagnostic" or "nonspecific," indicating that other tests were required to establish the diagnosis. Accordingly, blood was drawn for serum enzymes that would indicate whether there had been myocardial injury. I told Marjorie to go home while we awaited the laboratory results, confident that they would be normal, confirming my ill-conceived belief—perhaps more hope than belief—that I was not having a heart attack. An hour went by before the house officer came with unsettling news—my enzyme level was not normal, but intermediate—a clear indication for hospital admission.

Shortly after arriving in an intensive care unit monitor bed, the attending cardiologist came into my room—a reassuringly familiar presence, a physician whom I had helped train as a young UCLA house officer and cardiology fellow. I described my symptoms, and she calmly told me that I was to be taken directly to the cardiac catheterization laboratory. When I arrived, the laboratory was brightly lit and ready, and the catheterizing cardiologist was already there. Decades ago at Georgetown University Hospital in Washington, DC, I had myself been director of a cardiac catheterization laboratory, and the technical problems and risks faced in those early days together

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with patient fright and discomfort, if not pain, came vividly to mind. I braced myself for the encounter. But I soon saw the same attending cardiologist standing beside me once again and asked him when the procedure was to begin. He told me that it was already over. No pain, no memory—the marvelous combination of anesthesia and amnesia.

My next recollection was of the cardiac surgeon—one of the world's most brilliant, and a trusted colleague and friend. He had already seen my coronary arteriograms and told me that I needed coronary artery bypass. It was then about 5 A.M. My concern was Marjorie. I didn't know where she was or what she knew. But she had been immediately informed that I was to be operated on and was on her way back to the hospital.

Despite my then unsettled state of mind, I could hardly believe that I had coronary artery disease. Ever since I was a medical student, I had disciplined myself to minimize risk because of a history of coronary artery disease in my family: my mother and 2 maternal uncles had died of it. For years, I convinced myself that I had succeeded. I had never smoked, and my blood pressure was in the healthy range of low normal as was my cholesterol, I was at a lean body weight, and I exercised regularly. The overlooked preoperative diagnosis is a story in its own right, but my focus here is on how the ischemic event announced itself and how the subsequent sequence of events, especially the unanticipated and profound sequelae of anesthesia and hypothermia became manifest.

In August 2000, I had neurosurgery for relief of compression of my cervical spine. The operation was pronounced a success, and within a few months I was walking reasonably well and I returned to work. Within the year, however, I began to experience inappropriate fatigue. It has long been a medical truism that the unanticipated onset of fatigue for which there was no apparent explanation can be the first evidence of coronary artery disease. Here was the clue that my general physician did not recognize, and which I failed to recognize in myself, although if a patient had consulted me with this symptom, I would have been much more circumspect. Because I personally did not believe that an exercise stress test was necessary, my general physician did not bring up the subject in deference to my opinion. Consultations by UCLA and University of Southern California neurologists, including an electromyogram, disclosed that my skeletal muscle function was far too good to account for the disproportionate fatigue. Why the discrepancy? No answer was forthcoming.

In mid-September, Marjorie and I set off on one of our most ambitious travel schedules. On the Greek island of Santorini, an international symposium was held in my honor to celebrate the founding of Adult Congenital Heart Disease as a new subspecialty. Before Santorini, we were in Delphi, where with Marjorie's help, I climbed the rocky slopes of Mount Parnassus to the Sanctuary of Apollo. Had my ischemic event occurred then, I now realize, I would not have survived.

On Santorini, I was energized by the scientific meeting and by recognition from cardiologists who ranged from former fellows to those who came to pay their respects. On a free day, Marjorie and I were driven in a van part way up the steep slopes of ancient Thera. What if my ischemic event had occurred there? The next morning, I swam in the beautiful, but unheated, hotel pool. The shock of the numbingly cold water might well have triggered a heart attack, but it did not.

Our second trip was in October, beginning with a 2-day holiday in St. Petersburg. My ischemic event might have occurred during a long walk in the snow to a remote Greek Orthodox monastery.

I then accompanied Marjorie to Finland and Sweden after which she went on to Copenhagen and I to Norway. In Oslo, following my morning lectures at the medical school, I drove with my host north along the eastern Norwegian border. Early the next day, we returned by driving atop a spectacular 3,000-foot snow/ice-covered plateau. My ischemic event might have occurred then, 5 hours from Oslo.

The next morning, I took an Icelandic airline flight to Reykjavik on my way to the American Heart Association meeting in Orlando, Florida. Suppose the ischemic event had occurred while I was alone in the dreary, cold, dark, drafty Reykjavik transit lounge? Or on the nine and a half hour flight to Florida? At 7 A.M. the morning after arriving in Orlando, I gave the annual lecture to the International Society of Adult Congenital Cardiac Disease, returning to Los Angeles 2 days later. All in all, I was pleased with my ability to do so much at my age.

December 12th was a marathon day for me as a visiting professor at Houston's Texas Heart Institute. My 7 A.M. lecture was followed by a clinical conference, a second lecture, then meetings with faculty. Had my ischemic event occurred in Houston, I would at least have been in a world class hospital, but think of the problems that would have posed for my family.

Two days after returning from Houston, Marjorie and I went to a conference in downtown Los Angeles, because our daughter, Nancy, was giving a lecture. I recall that I found it difficult to walk from the parking lot. On December 16, as was my habit, I attended the weekly 7 A.M. UCLA congenital heart disease surgical conference. Twenty-one hours later at 3 A.M., the ischemic event announced itself—not in Delphi or in Thera or in St. Petersburg, not in Norway, Reykjavik, or aloft in an Icelandic airliner, or in Orlando or in Houston—but fortuitously at my home in Los Angeles 15 minutes from the UCLA Medical Center. After 3 months of exposure to the risk of occurrence under adverse circumstances, myocardial ischemia became manifest at an opportune time and in an opportune place. Why hadn't the stressful experiences of the previous few months triggered the ischemic event? Was there a medical rationale? Or did the hand of God or a throw of the dice determine the fortunate timing and place?

Now to return to the narrative. In striking contrast to the anticipated self-limited postoperative chest pain

were the unanticipated unforgiving weeks-on-end postoperative sequelae resulting from the depth and duration of anesthesia and the depth and duration of hypothermia.

From the 911 telephone call, to the arrival of the paramedics, to the catheterization laboratory, to the operating room, to the intensive care unit, contemporary medicine was at its best, with the aura of science fiction. When I awakened in intensive care, I could hear but not speak because of the endotracheal tube. Overwhelming weakness imposed an unsettling feeling of complete dependence. I did not have the strength to open the envelope of a greeting card. I was unable to move and could hardly lift my hand. But the care was intensive and impressive. No detail was overlooked. The nurses moved around me like clockwork. Then things changed.

On the second postoperative day, I was moved to a monitor room. The cyclopiian eye of the monitor stared at me impassively. Intensive care nurses were replaced by “health care providers” who often did not check on me for hours at a time. I was told to walk, but I could barely stand.

Marjorie had ordered my meals from the Wilson Pavilion, which supposedly provided gourmet fare at an additional \$130 a day. But more often than not, I was too out of it to fill in the request form on my breakfast tray, so I got no lunch—gourmet or otherwise. Marjorie also hired a “caretaker” for the night—a presence I barely noticed, because she did virtually nothing. The nights were very hard. I couldn’t sleep, and I couldn’t get comfortable. Fatigue increased my anxiety, and anxiety increased my fatigue. But I was happy to be alive, and when on Sunday, my younger daughter Carey and her husband Anthony and daughter Lexie came to visit from San Francisco, I evidently talked nonstop, recited poems, complained about the horrid night by calling up poetic images, and was on a curious high.

Five days after surgery, and the day after my 79th birthday, which was duly celebrated with a bland cake and an off-key chorus of sundry passersby, I informed Marjorie that I was to be discharged the next day! She was skeptical because she could see I was too ill to come home. But I disagreed vociferously, and when I foolishly insisted that I could not tolerate another night in the hospital, I was not told that I was being irrational. True, the attending cardiologist suggested that I might spend a few transitional days in the hospital’s rehabilitation unit, but the point was not pressed. I was apparently so affected by the anesthesia and perhaps by the host of drugs I was receiving, that I really could not make proper decisions. Marjorie did not say no; under the circumstances, she was afraid to upset me.

A brief word of explanation. In my generation, academic physicians were experienced clinicians who were also expected to be innovative clinical scientists, collaborating with but not replacing basic investigators. Today, this category is all but gone. Instead, the

faculty consists chiefly of 2 groups: (1) highly trained basic scientists, often PhDs, who spend 70% to 80% of their time in laboratories, and for a few months of the year emerge in unaccustomed roles as clinicians; and (2) physicians who hold clinical appointments, i.e., hospital-based practicing physicians who spend little or no time in research. There are variations on this theme but not many. Because my attending cardiologist was in the first category, I had been making unrealistic demands that could not be fulfilled. To give just one example: on my first day in the monitor room, the cardiologist called Marjorie at home to find out the dose of baclofen, a drug I had taken for hiccups before my illness. Why my wife was called rather than the hospital pharmacy escapes me.

How did it feel to come home? Marjorie tells the story in the following, but here are a few impressionistic memories. During the first week, I could not move in bed, and I could not get comfortable despite the efforts of the nurse who slept nearby on the floor when she slept at all! I once slipped out of bed and lay helpless where I had fallen. For 3 successive days and nights I could not sleep, a strange and seemingly contradictory combination of unbearable fatigue, yet unbearable inability to sleep. Sleep deprivation is a form of torture. Toward the end of each day, I became anxious and looked upon going to bed not as a respite, but as an unpleasant challenge to be overcome, often unsuccessfully. Not surprisingly, I was depressed. It was unsettling to be confronted starkly with one’s own mortality. However, postoperative depression is not merely circumstantial, but can also be a response to neurohormones elaborated after bypass surgery.

Fatigue took another form. I have habitually taken refuge in reading, substantive reading in which I become engrossed. But my concentration span was so limited that after reading no more than a newspaper for 15 or 20 minutes, I would tire. Books, my favorite refuge, were out of the question.

My taste for foods changed substantially. Favorite foods were no longer favorites, but instead often proved inedible. I had no desire to listen to music, usually a great solace. Then there were hiccoughs, intolerable recurrent hiccoughs, hours at a time. Hiccoughs—*singultus* (Latin), “sobbing, gasping, death rattle.” Aptly named.

Hypothermia—the induced dramatic reduction in body temperature designed to minimize metabolic needs when the circulation is dependent on the heart-lung machine—had its own unanticipated postoperative sequelae. I couldn’t adjust to atmospheric temperature. I was constantly cold. I wore gloves in bed, was bundled with blankets, and the thermostat was turned up so the house was unbearable for everyone except me. Eight or 9 weeks later, I was still sensitive to cold. When I opened a door, I touched the wood because the metal handle was uncomfortably cold. The metal of a dinner table knife and fork was unpleasantly cold.

FROM THE PERSPECTIVE OF THE DEVOTED BUT UNINFORMED SPOUSE

Joe's discharge from the hospital was scheduled for Monday, December 22. I was apprehensive because he could not yet walk and was very weak. But he was so adamant about coming home that I agreed. I asked several physicians and nurses whether he would need a private duty nurse or whether they thought I could manage with my housekeeper, and they all seemed unconcerned and did not express any worries. My plan was to make do with my trusted housekeeper, whose own husband withstood a heart attack, thanks in part to Joe's help.

On the morning of the 22nd, Joe called and said the discharge drugs had been ordered from the pharmacy and the ambulance had been requisitioned, so that all would be in order for a 2 P.M. departure. I arrived in his room at about 1 o'clock and was disconcerted to see that he had had no lunch; they neglected to bring it, special order notwithstanding! I went to the pharmacy to pick up the drugs, but there was no record of the order! I returned to the fourth floor, and after much back and forth, the nurse at the desk arranged to have the drugs delivered to our house by courier in the afternoon. Meanwhile, Joe had not yet had the mandatory predischarge bowel movement. He was given a suppository and, sure enough, just when the ambulance driver arrived, Joe made a terrible mess. The driver said not to worry: he would send a later ambulance.

Hours went by. At 6 P.M., the "later" ambulance had not yet come. At this point, thanks to further bowel movement aids such as mineral oil and milk of magnesia, Joe again made a terrible mess, and the nurse was busy cleaning up the bed, the pad, and his body when the ambulance arrived. The nurse volunteered that she did private duty and asked if I wished her to come home with us. I was very much relieved and said yes. We finally departed—Joe and the nurse in the ambulance, I in the car—at about 7 P.M., 5 hours later than scheduled.

The arrival at home was extremely difficult. The 8-step staircase to the second floor is narrow, so the paramedics had to bring Joe upstairs on a special stretcher. They finally got him into bed in the guest room, and the nurse did yet another clean-up. This time she had brought along the requisite adult diapers (a vital disposable item of which I was previously unaware), so from then on, this task was not as horrendous.

Getting Joe settled was difficult; I never could have done it myself or even with my housekeeper. He could not move; he was as inert as a sack of potatoes. It took both the nurse, who was a large strong woman, and myself to turn him over. He was always cold and needed gloves as well as several blankets, and 6 pillows were needed to prop him up. The nurse kept telling me that I should have ordered a hospital bed, but it was too late and besides it would not have fit anywhere.

The medicines had indeed arrived—19 drugs in

all—and we administered them. Joe had something to eat—his appetite was good although his tastes had changed enormously—and I got ready for bed. At 11 P.M., I came back into his room and he was sitting in a chair saying he could not breathe properly. The nurse said we should inform the cardiologist who was duly paged, called back and said, "Well, maybe you should bring him in!"

This was my breaking point. It would have meant calling yet another ambulance, getting Joe downstairs on yet another stretcher, and waiting in that dreaded emergency room. Could Joe survive it? I heard him say he'd rather die at home than get into the ambulance again. He suggested that what he needed was a sleeping pill or a tranquilizer, neither of which, oddly enough, had been included among the 19 drugs!!! I was dispatched to a 2 A.M. pharmacy located 15 minutes from home. It was raining and cold, and by the time I got there, it was midnight. But the order had not yet been filled, even though I had called in advance, because the cardiologist had not given the pharmacy her ID number. So I waited for about 20 minutes while the pharmacist paged her. I was pacing the floor nervously; the pharmacist asked me to sit down and relax. Hard to do!

When I finally got home with the sleeping pill and Xanax tranquilizers, it was 1 A.M. I took a sleeping pill myself and left Joe in the hands of the nurse. In the morning, she said he had slept a few hours but was up again by 4 or 5 A.M.

So ended the first day at home. I tell this story in such tedious detail to underscore its implications. Suppose we had not had a nurse? We had one just by fluke and she, or one of her substitutes, was then with us 24 hours a day for a week! Suppose Joe was a single man living alone? True, a visiting nurse was scheduled to come 3 times a week for about 15 minutes, as was the physical therapist, but surely these visits counted for little during the immediate postoperative period. No one at the hospital had given me proper instructions. In the take-home bag, e.g., I found some breast-shaped rubber cups. I had no idea that these were "percussors" for use every few hours during the first week or so after surgery to make sure the lungs are expanded. Nor did I know how the spirometer, also in the bag, was to be used.

Indeed, I was in such a state that when Nancy, our older daughter, who had gone on a long-planned family ski trip before Christmas, called and asked if she should return, I said yes, please! By the next day, she was home. But the 3 of us—the nurse, Nancy, and I—could barely manage, even on the days when the housekeeper was also there. Why? Because—and no one had warned me—Joe suffered from unbearable insomnia. At one point he was awake for at least 3 straight days and nights. He was agitated and depressed and kept talking nonstop. He wanted something every minute. If he were lying on his side, we had to move him to his back or vice versa. At night, the nurse got almost no sleep; she lay on the floor so that he would not fall out of the bed. Once he did fall and lay helpless on the carpet!

Christmas arrived rainy and cold. Nancy and I were downstairs taking a break when the nurse appeared and said that Joe was wheezing and we should call the doctor. I was terrified of congestive heart failure. This time Nancy called the cardiologist, apologizing for having done so on Christmas day. "Maybe you better bring him in," she responded once again. It was pouring. I heard Nancy say, "No, that won't be possible," whereupon she was told, "If you want to do the ethical thing by your father, you'll follow orders and bring him to emergency."

Wow. Nancy and I agreed that the patient had to stay put. What to do? I called the surgeon, but he was in the middle of an operation and could not be reached. Finally, it occurred to me that an old friend and colleague of Joe's from the Adult Congenital Heart Center, himself a semi-retired pediatric cardiologist, lived not far from us, so I called him and left a message on his answering machine asking if he could do me a great favor and come over. He and his wife were at a Christmas party but picked up the message, and in an hour or so came over. Our friend went upstairs with his stethoscope and shortly came down to reassure us that Joe's lungs were clear, there was no wheezing, and we could relax: there was no danger. I shall never forget this man's kindness; I didn't know that he himself was quite ill. He died of cancer in mid-January, just weeks after this house call. But he was a physician of the old school, so he came to our house.

Because Joe obviously could not keep his appointment at the hospital, the cardiologist, apparently having second thoughts about urging him to come to emergency, did come to the house and check on him. And on Sunday, the surgeon himself came over, much to the excitement of the nurse who had never known the Great Man to do such a thing. His visit was the turning point. He discontinued half the drugs, prescribed 1 or 2 others, took out sutures, and found everything going well. He said that Joe had received superb nursing care: for example, his legs had been kept elevated and in elastic stockings so that edema would be minimized.

But suppose one could not afford a private duty nurse at \$20 an hour? Suppose one's spouse or housemate had to go to work? Fortunately, I was at home. Although retired from Stanford, I had been doing visiting professorships at other universities but was able to cancel various lectureships, and Nancy was not at work for a week because of her planned ski holiday. Suppose one had no family and no friend who could stay the night? How would one manage?

If a famous cardiologist who for decades has been on the faculty of the hospital where he had just been treated gets this sort of postoperative care, what about most people? Clearly, something has to be done. There must be much better communication between cardiologist and surgeon on the one hand, and with the patient's family or friends, on the other. The responsibility for communicating with the family usually falls to a nurse practitioner, but because of hospital cutbacks, that never happened. So it was strictly on-

the-job training, helped, in my case, by having taken care of 2 babies many years ago. Indeed, baby care became the model for my activities in the weeks that followed.

After the first week, things began to improve. Walking slowly improved. The second week, Joe could void into the toilet rather than into a bedside urinal, and although enemas continued for a while, the bowel movement situation—a nightmare for any caretaker—was better. A sponge bath gave way to a shower while sitting in a special chair, and then to a real bath in the third week or so. Insomnia persisted well into the third and fourth week. In the fourth week, Joe was able to come downstairs pushing the walker ahead of him and could manage his own medications. Elastic stockings—hell for someone else to put on—disappeared after the fifth week. Keeping the house temperature 78°C, like an oven, decreased to 72 by the sixth week. Daily outdoor walks began in the sixth week and driving short distances in the seventh.

Let me now summarize what the typical caretaker's day was like during the first month after coronary bypass, at least bypass at the patient's advanced age. The morning began with emptying the urinal, administering drugs, and delivering the breakfast tray. Sponge bath and dressing the patient followed. Then the morning walk, no further than into the next room, had to be supervised. By 10 A.M. or so, the patient may try to sleep a bit, during which time the caretaker can do the laundry and clean up. Soon it is time for more medicines, the lunch tray, and seemingly endless time-consuming drugstore errands. A change of pajamas and betadyne dressings are needed, and then it's time for the second "walk" and attempts to provide distracting entertainment, the patient's anxiety and agitation notwithstanding. The registered nurse and physical therapist pay their respective visits. So it goes until nightfall—the worst time of all, because sleep seems impossible. And the next day the cycle pretty much repeats.

The most unpleasant experience of the first month was the weekly re-evaluation trip to the hospital. Joe had recurrent fluid on his lungs, so on each visit, he first had to have a chest x-ray, then a lung tap to remove the fluid, a follow-up x-ray, and a clinical assessment by the cardiologist. Four hours would elapse, and I must confess that drove me slightly crazy. I am not good at hanging around hospitals. And the hospital visits always culminated in the pharmacy where more items, such as a balloon cushion, had to be procured.

Difficult as this period was for me—I got virtually no work done, falling behind on deadlines for articles and reviews—I was very proud that I could manage. And there were daily improvements. The metal walker, first eased down the steps with great noise announcing that the patient was about to descend, and constantly placed in different rooms by me, disappeared after 8 weeks, replaced by a cane, and now by the patient's own legs. He can drive himself to cardiac rehab 3 mornings a week and to hospital appointments. The visiting nurses and physical therapists

have stopped coming. With the help of prune juice and an occasional suppository, bowel movements are normalizing. To me, Joe seems to be reborn, his walking is better than before surgery, his color good, his spirits improving. He still tires easily and sleeps a great deal, so the duration of activities is limited; the window of opportunity—for a concert, movie, dinner out—are limited to a few hours at a time. But the amazing improvement is encouraging, certainly for me. The heart muscle itself sustained no detectable injury, so the surgery was considered a great success.

What lessons are to be learned from our story? From the perspective of a medical illiterate like me, a person who has almost never been ill and whose only hospitalizations have been for childbirth and the removal of an appendix at age 19, my thoughts are the following.

Current heart surgery obviously can achieve miraculous results: decades ago, patients with the same condition would simply have died. But diagnosis before surgery and postoperative care lag way behind—indeed, ominously so. History-taking is no longer cultivated as a medical skill: as a professor of rhetoric and literature, I am convinced that had the right questions been asked in the months before surgery, had the right dialogue been established by Joe's general physician and the 2 consulting neurologists, the diagnosis of coronary artery disease would have been made, and the event at 3 A.M. would not have been so dramatic. It might even have been precluded altogether. Although the diagnostic failure was partly Joe's own fault—he tried to put too good a face on things and did not press his physicians to do more—the glitches that occurred after the operation are, to my mind, simply inexcusable. It is clear to me that PhD investigators who choose the rigorous academic research track should not assume major responsibilities as clinicians. The house call, we all know, has long been obsolete, but should it not be selectively reinstated? Patients too ill to be driven to the hospital must either be kept in the hospital longer, or the attending physician must be willing to make a house call—in our case, not a big deal because we live <15 minutes from UCLA.

THE PHYSICIAN/PATIENT'S CONCLUSION

With recovery in sight, I am at once deeply grateful and yet uneasy. If such complex treatments as coronary bypass surgery are worth their enormous price in dollars, in the consumption of expensive hospital resources, and in the time demanded from physicians and nurses, then there must be more effective postoperative follow-through to make sure that the benefits—once achieved—are secured, whether the patient is my age or younger. The hospital bill alone (largely covered in our case by Blue Cross and Medicare) for the 6 days in the hospital was \$122,000. The phar-

macy bill alone was \$7,000, the intensive care unit, \$36,000. Add the surgeon's fee and home nursing care (the latter not covered by insurance), and we are talking about \$200,000.

Has modern treatment gone too far? Is it time to exercise restraint, to curb the urge to be limited only by technological constraints? Remember that when Asclepius, the god of medicine, tested his power too far, Zeus would not allow the rules of death to be broken, and destroyed Asclepius with a thunderbolt. Surely, as in the case of so many scientific advances of our day, the gulf between high technology and everyday life, between science fiction and everyday reality, must be narrowed if not bridged.

Or so reason tells me. But these thoughts, although legitimate, are largely hypothetical. Whether the physician is standing at the bedside in the role of doctor or lying in bed in the role of patient, the urge—indeed compulsion—to use high technology advances and skills in the treatment of the sick is difficult if not impossible to resist. Interestingly, surgeons are now re-examining the safety and efficacy of bypass operations performed on beating hearts without a pump oxygenator. In any event, now that the painful events detailed here are beginning to fade, I cannot consider the price of my own survival too high. Approaching my 80th year, I remain optimistic. I have ambitious research and teaching plans, exciting visiting professorships, and lectures to look forward to, and my many nonprofessional interests together with a devoted family promise a rich personal life. But then I was one of the lucky ones. I worry about those others who have less access to high quality postoperative care. They are the ones we must now work to help. Perhaps this account is a step in that direction.

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