Transradial PCI and Same-Day Discharge Have Proven to be a Winning Solution at Arkansas Heart Hospital

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Let me start by congratulating you on your recent study1, Dr. Rollefson. Your investigation into the safety and expenses of same-day discharge compared against next-day discharge for percutaneous coronary intervention (PCI) is a relevant and important issue in U.S. healthcare. Can you tell us a little about your program?

We are the Arkansas Heart Hospital, a cardiac-centered specialty hospital located in Little Rock, Arkansas. We are a tertiary care referral center for the entire state of Arkansas. We specialize in being the state leaders in cardiac care, with an eye towards innovation and bringing new technology to the people of Arkansas. We have 112 beds available at our institution. We perform 10,000 diagnostic catheterizations, 3000 PCIs, and roughly 1000 cardiac surgeries annually, ranking us as the busiest institution in our state. From a radial access volume standpoint, we are among the nation’s busiest. At last check, 80-90% of our diagnostic coronary procedures were done by radial access.

What was the impetus that led your group to undertake same-day discharge as part of your PCI program?

Arkansas has the lowest reimbursement from the Centers for Medicare and Medicaid (CMS) in the country. We HAVE to be more efficient in care delivery in order to keep our hospital solvent. Since I began our radial program in 2008, it has been a goal of mine to embark on a same-day discharge (SDD) care plan for PCI. It really didn’t make sense to me, from a clinical perspective, to keep someone overnight just because they had a PCI. At that time, there was little safety data to support a routine strategy of SDD, but I realized this practice would eventually become the norm. Also at that time, there was a financial incentive to the hospital for overnight stay, but when the “2-midnight rule” went into effect in 2013, this incentive disappeared. Overnight (pardon the pun), we transitioned to a SDD institution. One of the first patients that I discharged on a SDD protocol was actually the brother of one of my partners. Needless to say, he (my partner) was a little concerned that I chose his brother as one of the index cases. As it turned out, the patient had a great experience and actually posted online how we were able to perform a PCI and send him home on the same day, with minimal discomfort.

Why was it important to you and your colleagues to look at costs?

At the time we began the program, we were actually investors in the hospital. Certainly, we had a financial interest in the stability of the hospital. However, I have always been cost conscious, having spent 10 years in the U.S. Army Medical Corps. Everything we did in the Army was scrutinized for cost effectiveness, contrary to what you read in the media. Many of my partners served in the Armed Forces as well, so appreciation of cost containment is second nature to us. It was a win-win situation for us. Better patient care, improved patient satisfaction, and lower perceived costs was the outcome.

Your program relies heavily on transradial access to facilitate SDD. Can you tell us a little more about the history of how and why transradial access was adopted by your group?

In 2008, I was quite frustrated with groin complications. I had tried everything I could think of to avoid them, including smaller sheaths, longer bedrest, and the use of bivalirudin (with its increased cost), etc. Finally, I realized that the only way to avoid groin complications was to not access the femoral artery. At that time, radial access was reported in other countries, but not used routinely in the U.S. I have a fairly unique practice environment, and literally, I walked into the lab and informed the staff that we were going to adopt radial access. Other than experience with radial arterial monitoring lines and a scattered experience with radial access in the mid-1990s, we had to develop the technique independently in our labs, as there was little in the way of resources available to us. As time went on, my partners became keenly interested in the technique, and we as a group established a radial-first mentality quickly. Patients LOVED it, and we continue to rank in the top 1% nationally in regards to patient satisfaction at our institution.

Many physicians are concerned about discharging patients the same day. How did you resolve this issue in your program?

In regards to SDD, we discussed the feasibility of adopting the strategy, but did not demand formal criteria. We used the available medical literature as our template and there are multiple studies supporting a SDD strategy. I will admit, that for the first few patients, I was a little anxious telling them to go home. But, we have had NO untoward outcomes since 2013. Not a single SDD patient has died, had a myocardial infarction (MI), stent thrombosis, or readmission. Perhaps that is due to adequate patient selection for SDD, but it is proof that SDD is extremely safe. The RASADDA-PCI trial is the latest in a long line of PCI trials supporting SDD.

How did you decide which patients were suitable for same-day discharge?

The Society for Cardiovascular Angiography and Interventions (SCAI) published a very conservative document for SDD in 2009. We attempted to use it as our initial template, but subsequent studies showed that more patients would be eligible for SDD. As time went by, we expanded the pool of SDD candidates. At this time, we rely on clinical issues identified at the time of the PCI to determine the SDD patients. It basically comes down to the PCI procedure itself. An uncomplicated procedure is exactly that. There are no data that support overnight stay is needed for most patients, regardless of complexity, age, or other issues. Breaking through these stereotypes has been the greatest challenge for us. But, with experience, you gain wisdom. We realized that we could send almost anyone home with an elective PCI, unless there were other medical issues (renal insufficiency, etc.) that would warrant a longer hospital stay. Just the PCI alone is not a factor.

What has been the impact of transradial access and same-day discharge at your center? Amin et al2 recently concluded that TRI and SDD were independently associated with fewer complications and in-hospital associated costs.

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William A. Rollefson, MD, FACC, Arkansas Heart Hospital, Little Rock, Arkansas
After the two-midnight rule was implemented in October 2014, many of our inpatients became outpatients with a tremendous loss of revenue. Being able to reduce costs and length of stay simultaneously with radial stenting and diagnostics allows us to remain competitive and and is best solution to this problem.

The obesity epidemic, now affecting over 35% of our patients, makes femoral access more likely to be complicated and radial access is a tremendous advantage to dealing with obese groins.

Our patient satisfaction soars with every case. Once patient expectations align and they understand the short recovery time leads to being home shortly after the procedure, they love it.

Dr. Amin’s study is very important data. It supports a roughly 30% reduction in cost by discharging patients on the same day as their procedure. I haven’t seen the specifics, but his data actually correlate well with our study. There are a few differences, however. First, his study is a review of the NCDR database. It compares the outcomes for femoral vs radial access and SDD.

Our study is a registry of PCI patients in a center that is heavily focused on radial access. We compared radial access patients and the major variable was overnight stay. In our study, the cost savings were entirely due to SDD, as we didn’t enroll any patients in whom a femoral strategy was employed. Additionally, we were able to control for medication costs, numbers of stents used, and adjunctive therapies. There were no differences between the two groups. Yet the magnitude of savings paralleled Dr. Amin’s study. I find that interesting. When extrapolated to the entire country, the potential cost savings are astronomical! In fact, my electrophysiology (EP) colleagues are currently exploring a SDD strategy for device implantations.

My conclusion is that our studies prove what we expected. SDD is incredibly cost effective. Our study also demonstrated that SDD is safe as well, adding it to the available literature in the field. So, in essence, we killed two birds with one stone. We demonstrated that SDD is both safe and incredibly cost effective.

Beyond the economic advantages, does your TRI and SDD program suggest there are additional clinical benefits beyond the procedural outcomes?

The other clinical benefits are primarily due to patient satisfaction. When given the choice, most people would prefer to go home and sleep in their own beds. Interestingly, on occasion, a family is more worried about going home than is the patient. The biggest challenge remains changing a 30-year practice pattern for overnight stay. As time has gone by, this seems to be less of an issue.

So, why hasn’t it been adopted more in the U.S.? Well, from my experience, the SDD strategy has been gaining more acceptance. Dr. Amin’s data is somewhat dated already, with <10% reported being SDD patients. I do believe that more practices are sending more patients home. Some of the factors preventing SDD are simply conjecture, but I’ll take a crack at it. First, it takes a lot to change practice patterns. Old dog, meet new trick. It’s similar to the relatively slow adoption of radial access in this country. Most cardiologists will continue to do things in a way that works for them, unless they are encouraged to change something. Secondly, from what I hear from my radial trainees, there is some concern about legal liability for SDD. I do believe there is enough medical data to refute this concern, but once again, old habits die hard. In fact, there was a member of my group who wouldn’t send anyone home SDD with the rationale that “it only takes one patient.” Despite a large amount of literature to support SDD, convincing U.S. physicians takes a supreme effort in order to change practice routines. Finally, there are some states in which there is incremental reimbursement for an overnight stay. That is not the case in Arkansas. They are treated as outpatients, regardless if they stay or not. I predict that SDD rates are going to rise due to our studies.

You and your colleagues have been champions of transradial access for some time now, even to the point of training physicians at your facility. What key messages do you attempt to impart to the attendees?

We have trained hundreds of physicians in radial access techniques. I love training other physicians. It gives me the opportunity to find out what’s going on in the rest of the country. A consistent question from our trainees is, “How can I be more efficient?” We show them how radial access and SDD allows them to improve their efficiency through improved cath lab throughput, shorter hospital stays with fewer complications, and fewer patients to round on the next morning. One of the critiques I hear from operators that are femoral-based is that there is nothing to prevent SDD in femoral access patients. While this is technically true, radial access makes this much easier. Additionally, fewer nursing resources are needed for the radial patient. Radial access is now used in 30-40% of cases in the U.S. Here are our course objectives:

1. Demonstrate the proper set up and techniques for successful transradial intervention.
2. Allow the attendee to gain confidence and experience. Ours is a “hands-on” course, with the attendee learning access and catheter skills.
3. Break down barriers to radial adoption. Demonstrating that a radial cath is actually faster than a femoral cath is an epiphany for most folks.
4. Encourage SDD. It is wonderful for the treatment of our patients. It’s yet another example of a strategy that is safe, cost effective, and yields unequivocal patient satisfaction.

References