Establishing a Community Hospital Interventional Oncology Program: Advanced Therapies

The second in a three-part series on the most important components of starting a successful practice.

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This is the second article in a three-part series focusing on the necessary components to growing an interventional oncology (IO) program in a community hospital. The first article of the series discussed essential equipment and services in establishing the program.[1] This article will focus on developing capability for advanced therapies, specifically transarterial and percutaneous ablative treatments. As previously stated, each practice setting is different from the next, and therefore, this article should be construed as a general guideline and personal advice. Specific details and strategies will have to be tailored to an individual practice setting (academic, pseudoacademic, community), group relationships, hospital relationships, staff capability, and availability of adjunctive hospital ancillary services. Not every strategy will be successful for every practice. Specific examples and lessons learned will be cited when possible.

TRANSARTERIAL THERAPIES

The comprehensive IO practice must include the ability to perform transarterial liver-directed therapies, including both chemoembolization and yttrium-90 (Y-90) radioembolization. The new graduate must accept that although these treatments were the "norm" where they trained, and thus patient flow and the procedure process appeared straightforward, transarterial liver-directed therapies may be a completely foreign concept in many community hospital settings. Trainees have the benefit of practicing in institutions where the regulatory hurdles, ancillary staff training, protocols, and equipment approvals have already been addressed, likely years prior to their arrival. The trainee's experience in training institutions is the product of multiple years or even decades of process refinement. It is critically important to understand this fact and to accept that there will be a large moment of inertia in getting these cases rolling in hospitals that do not have an established IO practice in place.

Many hospitals considering an IO program already have equipment in place capable of performing chemoembolization. Assuming that mesenteric angiography or uterine artery embolization is currently being performed on site, the equipment should be fully capable of chemoembolization. However, for radioembolization, the capability to perform rotational angiography (ie, DynaCT, Siemens Healthcare USA; XperCT, Philips Healthcare) is strongly recommended because it helps identify any arterial branches that could result in complications. When starting a new program, it is crucial to ensure that the initial cases go as smoothly as possible. If your machine cannot perform rotational angiography, you may want to consider equipment or software upgrades prior to undertaking radioembolization procedures.

Chemoembolization

Strictly from a regulatory and cost perspective, chemoembolization is a more straightforward process than radioembolization. Chemoembolization requires that interventional radiology (IR; both technicians and nurses) and floor nursing staff are familiar with the procedure and the expected postprocedure management. We found that the easiest way to accomplish this task was to hold morning in-service meetings with the IR staff and the floor nurses who will care for patients during the 23-hour postprocedure observation stays. Take this opportunity to also discuss care of the postablation patient, as these individuals will likely be sent to the same nursing units.

Most hospitals require that protocols be in place for new procedures. Regardless of whether it is a requirement to establish standard protocols in your hospital, it is a good idea to have them to avoid staff confusion. You should also meet with your hospital pharmacist once the process has been initiated to discuss the preparation of chemotherapeutic agents. A discussion of the relative benefits or weaknesses of the different types of transcatheter arterial chemoembolization (TACE) agents is beyond the scope of this article. However, I have personally found that drug-eluting beads were the easiest preparation to standardize with my hospital pharmacist, and I was able to establish a protocol both for standard doxorubicin beads as well as irinotecan-loaded beads (DEBIRI).

Radioembolization

Radioembolization or Y-90 has more moving parts than chemoembolization, as there must be coordination with radioactive dose ordering, handling, preparation, safety, and postprocedure nuclear imaging. This does not mean radioembolization cannot be successfully implemented, but it requires a significant time investment. Although I already had personal procedural experience with radioembolization in training, my partners and I found it helpful to attend the Society of Interventional Radiology Y-90 training course, which filled in some of the regulatory "gaps" in knowledge and more comprehensively addressed the administrative hurdles that I took for granted as a trainee.

Just as for chemoembolization, in-service meetings for radioembolization should be arranged for IR staff and any associated nursing staff. Do not overlook the role of nuclear medicine in this process. Protocols should be in place to ensure the process is standardized and there is no staff confusion. Establish additional protocols for liver/lung shunt calculation and bremsstrahlung scanning in your nuclear medicine department. Seek help from industry and/or your former training program for establishing these protocols, as they may be able to provide formulas and dictation templates.

Involve your hospital's radiation safety officer as soon as possible in the process. It is likely he/she will be unfamiliar with the regulatory issues surrounding arterial administration of radioactive isotopes. The biggest concern will inevitably be whether the patient can be safely released after Y-90 microsphere therapy. Fortunately, there are many helpful articles that you can provide to your radiation safety officer, with studies finding almost all patients are safe for release without any necessary contact precautions.[2] As mentioned, do not underestimate the value of the industry, especially for radioembolization. Representatives who cover your region will be more than eager to assist you and your hospital in establishing a program. They can be an invaluable resource for Y-90, assisting with everything from providing nuclear protocols to guiding your staff through proper room setup during their first few cases.

For any of the previously mentioned procedures, I would also review the process and create a "patient timeline" for your schedulers, both in the clinic and your IR procedure area. This will simplify the process for scheduling and avoid mistakes related to time needed for TACE dose preparation or receipt of the Y-90 dose prior to the treatment day. For example, you may only want to schedule TACE cases from Monday through Thursday, given the expected overnight patient stay. Meanwhile, Y-90 cases may be scheduled on a Friday, but mapping and treatment may need to be separated by a 2-week interval due to the timing of dose ordering and delivery. Look into this prior to the patient's appointment for the mapping study. You should also create a standardized posttreatment laboratory and consultation algorithm to ensure patients are not lost to follow-up or present to the clinic without results of laboratory testing.

Radioembolization requires more time and infrastructure investment compared to chemoembolization. It may be initially tempting to focus solely on chemoembolization and avoid radioembolization in the community setting altogether. However, I personally feel that this is a mistake in 2016. You are far more likely to encounter liver-dominant metastatic disease than primary hepatocellular carcinoma (HCC) in a community hospital setting. Moreover, you will be severely limiting your patient base if you are not in a transplant center, because any early stage HCC can and should be worked up for curative transplantation. For advanced and multifocal HCC, several authors have advocated radioembolization in this setting. Limiting the scope of patients you can treat also requires your referrers to be selective about which type of patients they send you for consultation—this is not a viable long-term strategy for obvious reasons.

PERCUTANEOUS ABLATION

Percutaneous thermal ablation is another essential component of any successful IO program. In my own practice setting, cryoablation was already available for renal mass treatment. Therefore, I focused on acquiring radiofrequency ablation or microwave technology to round out our capabilities.

It may be difficult to convince your hospital to invest the capital required to purchase these machines because they are expensive, and there is no guaranteed case volume initially. However, most

vendors will allow at least a "demo" or trial period with the machine, which I have personally found to be helpful. This allowed me to have the technology in place to allow referral marketing, development of the protocols, and training of the staff on the technology. When the trial period expires, you may have some cases to present to your hospital administrators, which can help justify the full purchase. Daily rental options also exist for some radiofrequency machines. These typically come at the cost of a higher price per probe, which reduces hospital margins, but can help you get your service up and running at least initially.

SUMMARY

Establishing the protocols and processes required for successfully performing advanced IO therapies requires both time and patience. Every hospital and practice situation will most certainly encounter different hurdles than the next. Accept that the process will take time, and do not be discouraged; however, also understand that once the process is in place, the service is in no way complete.

In order to offer the same comprehensive, high-quality care provided by academic centers, community hospitals should incorporate thermal ablation, chemoembolization, and radioembolization into their IO programs. Start the Y-90 authorized user license approval process early because it can take several months. Before scheduling your first case, begin training your staff and try not to overlook any of the individual components. The concept of establishing a clinical service must be reiterated. A referral base and strong relationships with your medical oncologists cannot be developed if you are unwilling to accept the clinical and longitudinal care associated with providing these therapies. ■

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