



The Society for Cardiac Angiography and Interventions

President's Page



Intravascular Radiation: Let's Not Let a Promising Therapy Go Unfulfilled

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Restenosis has been termed the Achilles' heel of coronary intervention. With the use of intracoronary stenting, although the restenosis rate has dropped, a new problem—in-stent restenosis—has reared its very ugly head. In-stent restenosis may occur in up to 30% of stented arteries and results from the proliferation of neointimal tissue.

The subsequent recurrence rate after treatment for in-stent restenosis remains about 30% despite the various conventional modalities employed, including balloon angioplasty, rotational atherectomy, laser ablation, and repeat stenting.

Recent studies using the delivery of intracoronary radiation (brachytherapy) has aimed at reducing neointimal proliferation and has resulted in a significant reduction of in-stent restenosis. To date, this has been the most effective method of reducing in-stent restenosis.

The FDA has approved both beta and gamma radiation systems for use in delivery of intravascular radiation for the treatment of in-stent restenosis. The approval carried the recommendation that a radiation oncologist and a radiation physicist must be present during these procedures.

Although in the centers where the preliminary work has been performed there has been excellent cooperation between interventional cardiologists, radiation oncologists, and radiation physicists, translating this to the real world will not be so easy. The predictability and timing of routine interventional procedures in the catheterization

laboratories at busy institutions is at best unreliable. This makes the logistics of getting not only a patient and interventional cardiologist but also a radiation oncologist and radiation physicist to the catheterization laboratory at the same time a difficult undertaking.

To many of us who are experienced in the use of diagnostic radiation, both in the catheterization laboratory and in the nuclear cardiology laboratory, interventional cardiologists could be trained to deliver intravascular radiation, as has been the case in many other areas of medicine. Endocrinologists, ophthalmologists, and urologists have been trained to deliver therapeutic radiation, including closed source radiation. However, the FDA guidelines for the use of intravascular radiation call for both a radiation oncologist and a radiation physicist to be present during the delivery of intravascular radiation.

For the last several years, we have attempted to engage in discussion with the radiation oncologists and radiation physicists about the logistics involved in this. Additionally, both the American College of Cardiology (ACC) and the Society for Cardiac Angiography and Interventions (SCA&I) have tried to obtain a voice in the devel-

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opment of guidelines for the use of intravascular radiation by asking for a seat on the Nuclear Regulatory Commission's Advisory Committee on the Medical Uses of Isotopes (ACUMI). The ACC and the SCA&I have not only been turned down in this request—our letters have not even been answered by the ACUMI.

However, there may be light at the end of the tunnel. Recently, in conjunction with the ACC, the SCA&I has formed a working group with American Society for Therapeutic Radiation Oncologists (ASTRO) and American Association of Physicists in Medicine (AAPM) to evaluate and discuss the health and safety issues involved in the delivery of intravascular radiation, the logistics involving radiation physicists and radiation oncologists in the catheterization laboratory, the necessary training on both ends (certainly radiation oncologists and physi-

cists will need some further training in recognition of coronary disease), regulatory issues (particularly the NRC), reimbursement issues (HCFA), and ultimately to develop a joint guideline that can be a model of cooperation.

Intravascular radiation at this time is the most beneficial and cost-saving therapy available for in-stent restenosis. In order to make this a therapy that will be useful for the treatment of our patients, cooperation will be necessary between all the above groups. Ease of delivery will be an issue in busy catheterization laboratories. Time is also an issue because of competing technologies that may soon be available. If intravascular radiation is going to be successful, it needs to do so effortlessly and quickly or become only a footnote in the history of coronary interventions.