

Brief Treatment History of In-Stent Restenosis

The interventional cardiology field is characterized as one of innovation with rapid advancements in technology. Over the last 10 years, coronary stenting with stainless-steel stents have become a primary treatment for patients with coronary artery stenosis, yet a significant subset of these patients develop in-stent restenosis, a difficult clinical problem to solve. The development of vascular brachytherapy demonstrated great improvement in the treatment of in-stent restenosis, but recent developments in the area of drug-eluting stents have clouded the perception of the future of vascular brachytherapy technology.

Vascular brachytherapy has been widely studied with more than three multi-center, randomized, double-blind studies, each producing similar results in significantly reducing the rate of restenosis. Medicare recognized the importance of this new technology and expedited reimbursement for hospitals to help offset the costs of offering vascular brachytherapy in the Cath Lab. Vascular Brachytherapy is evidenced-based medicine, gathered from large clinical trials; it has provided significantly successful results in real-world use with some large labs reporting a low 3.8% target vessel revascularization rate.

Much commentary is available on drug-eluting stents prior to their commercial availability in the U.S.; drug-eluting stents are predicted to have a significant clinical and economic effect. Widespread use of the new drug-eluting stents will demonstrate this effect as hospitals struggle to address the potentially significant cost issues. Recent clinical data show a reduction in the rate of in-stent restenosis when drug-eluting stents are placed; however, there remains an approximate clinical restenosis rate of 8% in patients treated with the drug-eluting stents (Interim Analysis, SIRIUS trial; presented at the Paris Revascularization Course, May 2002).

So clinical restenosis still occurs. At this time, vascular brachytherapy remains the only treatment with strong clinical data to treat restenosis, and it is an economically viable treatment for the hospital cardiac catheterization lab. Reports of the proposed vascular brachytherapy technology obsolesce appear to be premature, and it is probable that vascular brachytherapy will remain the treatment of choice for in-stent restenosis – today and tomorrow.