

Rationale for coronary artery radiation therapy.

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Within the past decade, focus on radiation to prevent restenosis has moved from a concept developed in the animal laboratory to a clinical treatment. The initial evaluation of coronary artery radiation therapy focused on changes in the function of the artery or lesion formation following overstretch balloon injury in pigs. A number of concepts emerged from this work: (1) radiation inhibits neointima formation in a dose-dependent fashion, (2) radiation prevents negative remodeling, (3) radiation does not reverse established injury, (4) low dose irradiation in an injured area may be injurious, (5) radiation is a useful adjunct to stenting, (6) benefits of radiation in animal models at 6 months are less pronounced than at 1 month, (7) radiation delays healing, (8) permanent stents and radiation delivered from external sources may have very different effects on restenosis, and (9) radiation interferes with vessel wall function. More recent studies of irradiation have looked at the molecular biological effects of radiation in hopes of understanding how this therapy works, and how it may be improved.

This article attempts to summarize the known animal and cellular work on radiation in preventing restenosis. Copyright 2002 by W.B. Saunders Company
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