Catheter Cardiovasc Interv (2004);62:155-61
Novel use of a high-energy excimer laser catheter for calcified and complex coronary artery lesions
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This study was designed to evaluate safety and effectiveness of the 0.9 mm excimer laser coronary catheter with increased laser parameters. We report a prospective trial of 100 calcified and/or balloon-resistant lesions where a new 0.9 mm excimer laser catheter was used at standard or higher energy level to facilitate angioplasty. Standard in-hospital clinical and angiographic parameters were collected and measured. Laser technical success was obtained in 87 lesions (92%), procedural success was reached in 88 lesions (93%), and clinical success in 82 lesions (86%). Increased laser parameters were used for 29 resistant lesions. This new 0.9 mm excimer laser coronary catheter using higher energy parameters seems to be safe and effective for management of calcified and nondilatable lesions.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15170703

J Am Coll Cardiol (2004);43:936-42
Meta-analysis of randomized trials of percutaneous transluminal coronary angioplasty versus atherectomy, cutting balloon atherotomy, or laser angioplasty
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OBJECTIVES: We conducted a systematic overview (meta-analysis) of randomized trials of balloon angioplasty versus coronary atherectomy, laser angioplasty, or cutting balloon atherotomy to evaluate the effects of plaque modification during percutaneous coronary intervention. BACKGROUND: Several mechanical approaches have been developed that ablate or section atheromatous plaque during percutaneous coronary interventions to optimize acute results, minimize intimal injury, and reduce complications and restenosis. METHODS: Sixteen trials (9,222 patients) constitute the randomized controlled experience with atherectomy, laser, or atherotomy versus balloon angioplasty with or without coronary stenting. Each trial tested the hypothesis that ablative therapy would result in better clinical or angiographic results than balloon dilation alone. RESULTS: Short-term death rates (<31 days) were not improved by the use of ablative procedures (0.3% vs. 0.4%, odds ratio [OR] 0.94 [95% confidence interval 0.46 to 1.92]), but periprocedural myocardial infarctions (4.4% vs. 2.5%, OR 1.83 [95% CI 1.43 to 2.34]) and major adverse cardiac events (5.1% vs. 3.3%, OR 1.54 [95% CI 1.25 to 1.89]) were increased. Angiographic restenosis rates (6,958 patients) were not improved with the ablative devices (38.9% vs. 37.4%, OR 1.06 [95% CI 0.97 to 1.17]). No reduction in revascularization rates (25.2% vs. 24.5%, OR 1.04 [95% CI 0.94 to 1.14]) or cumulative adverse cardiac events rates up to one year after treatment were seen with ablative devices (27.8% vs. 26.1%, OR 1.09 [95% CI 0.99 to 1.20]). CONCLUSIONS: The combined experience from randomized trials suggests that ablative devices failed to achieve predefined clinical and angiographic outcomes. This meta-analysis does not support the hypothesis that routine ablation or sectioning of

atheromatous tissue is beneficial during percutaneous coronary interventions. http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15028347