The HelpDesk Search Strategy

HelpDesk Answers are intended to provide the same quality response to a clinical question as would be achieved by a search-savvy physician spending an hour or so on the Internet. Authors of HelpDesk Answers are directed to search Healthlinks (http://healthlinks.washington.edu/search_evidence) and the TRIP database (www.tripdatabase.com). These portals provide access to more than a dozen sources of the highest quality evidence-based clinical information, including BMJ Clinical Evidence, the Guide to Clinical Preventive Services, AHRQ Evidence Reports, and others. Searches of the Cochrane Database, Medline, and other databases, are conducted as needed.

What is the best treatment for chronic post-CABG pain?

Evidence-Based Answer

Evidence is insufficient to choose a single best agent. However, amitriptyline, capsaicin cream, opioids, and NMDA antagonists are effective choices for other postsurgical pain syndromes and may be effective treatments of pain after coronary artery bypass grafting (CABG). (SOR **C**, extrapolated from randomized controlled trials [RCTs] involving other surgeries.) Gabapentin and lamotrigine, commonly used for neuropathic pain, are not effective for postsurgical neuralgia. (SOR **C**, based on expert opinion.)

A 2001 retrospective cohort study was designed to characterize the prevalence of post-CABG pain syndrome.[1] Data were available on 387 patients who underwent CABG at a single clinical center. Post-CABG pain was defined as chest wall pain of more than 3 months' duration that appeared after CABG or was different from the patient's preoperative angina. Questionnaires and phone calls were used screen participants. The prevalence of post-CABG pain was 56% (217/387). Most of these participants (65%) rated the intensity of their pain at least "moderate," and 70% of participants noted that their pain limited their daily activities.

No studies were found that directly address pain management in the post-CABG pain syndrome. A 2004 narrative review, however, categorizes post-CABG pain as a subtype of postsurgical neuralgia.[2] The author stated that post-CABG pain is neuropathic in origin, due to traumatic nerve injury to the intercostal nerves that occurs during harvest of the internal mammary artery. The author also pointed to RCTs, which study interventions for postmastectomy pain, to guide therapy of post-CABG pain.

A 1996 randomized, double-blind, placebo-controlled crossover study was designed to determine the efficacy of amitriptyline versus placebo in postmastectomy neuropathic pain.[3] Fifteen patients were enrolled and instructed to take amitriptyline at escalating doses from 25 to 100 mg daily or placebo for more than 4 weeks. Treatments were switched after a 2-week washout period. Using the Finnish McGill Pain Questionnaire, patients reported an 82% decrease in chest scar pain with amitriptyline versus a 28% reduction with placebo ($P<.05$).

A 1998 double-blind RCT demonstrated superiority of the NMDA antagonist amantadine over placebo for the treatment of surgical neuropathic pain in cancer patients.[4] Fifteen patients were administered infusions of 200 mg amantadine and placebo, in a randomized order, separated by 1 week's time. Both spontaneous and evoked pain measurements were assessed via a visual analog scale. Average pain reduction with amantadine was 85% compared with 45% with placebo ($P<.01$). Two days after treatment, pain intensity was reassessed. Amantadine remained superior to placebo, with a 31% reduction in pain versus 6% for placebo ($P<.01$).

A 1997 RCT involving 99 patients evaluated the effect of topical 0.075% capsaicin cream on postsurgical neuropathic pain in cancer patients.[5] Capsaicin or placebo cream was applied 4 times daily for 8 weeks, followed by an 8-week crossover. Patients reported a 53% reduction in pain with capsaicin versus 17% with placebo ($P=.01$).

Although gabapentin and lamotrigine are commonly used for neuropathic pain syndromes, such as postherpetic and diabetic neuralgia, no superior analgesic effect has been seen over placebo in posttraumatic neuralgia.[2]

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1. Eisenberg E, Pultorak Y, Pud D, Bar-El Y. Prevalence and characteristics of post coronary artery bypass graft surgery pain (PCP). *Pain.* 2001; 92(1-2):11–17. **[LOE 2b]**
2. Eisenberg E. Post-surgical neuralgia. *Pain.* 2004; 111(1-2):3–7. **[LOE 5]**
3. Kalso E, Tasmuth T, Neuvonen PJ. Amitriptyline effectively relieves neuropathic pain following treatment of breast cancer. *Pain.* 1996; 64(2):293–302. **[LOE 1b]**
4. Pud D, Eisenberg E, Spitzer A, Adler R, Fried G, Yarnitsky D. The NMDA receptor antagonist amantadine reduces surgical neuropathic pain in cancer patients: a double blind, randomized, placebo controlled trial. *Pain.* 1998; 75(2-3):349–354. **[LOE 1b]**
5. Ellison N, Loprinzi CL, Kugler J, et al. Phase III placebo-controlled trial of capsaicin cream in the management of surgical neuropathic pain in cancer patients. *J Clin Oncol.* 1997; 15(8):2974–2980. **[LOE 1b]**