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Is Calcitonin Useful for Reducing the Pain of Acute Osteoporotic Fractures?

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For a stenosis >50%, the AHA stated that most studies of CCTA yield negative predictive values of 98% to 100% (corresponding to negative likelihood ratios of 0.01–0.15). Therefore the use of CCTA in symptomatic patients with intermediate pretest probability of CAD, including patients with equivocal stress test results, is classified by the AHA as a class IIa recommendation ("conflicting evidence" but "weight of evidence/opinion is in favor of usefulness/efficacy"[1]). This recommendation is based on "B" level of evidence ("data derived from a single randomized trial or nonrandomized studies"[1]). The use of CCTA in patients with low pretest probability of CAD is not indicated, because concerns regarding radiation dose outweigh diagnostic benefits. Patients with high pretest probability of CAD are more likely to need percutaneous intervention and should receive conventional coronary angiography (class III recommendation, "procedure/treatment is not useful/effective and in some cases may be harmful,"[1] and level of evidence C, "only consensus opinion of experts, case studies, or standard of care"[1]). Use of CCTA in patients after stent revascularization is not recommended, due to artifact from the stent material precluding evaluation of up to 49% of stents.

A subsequent meta-analysis of 9 studies (566 patients) investigated the diagnostic performance of CCTA in the emergency room setting for patients with acute chest pain suspected of having acute coronary syndrome, but negative initial cardiac markers.[2] Included studies, found through a comprehensive literature search, defined a positive CCTA as a stenosis >50%; studies used conventional angiography or clinical follow-up as reference standards. The pooled sensitivity and specificity were 95% (95% confidence interval [CI], 90%–98%) and 90% (95% CI, 87%–93%). The pooled negative likelihood ratio was 0.12 (95% CI, 0.06–0.21) and the positive likelihood ratio was 8.60 (95% CI, 5.03–14.70), indicating CCTA may be useful in excluding significant CAD in patients with low to intermediate pretest probability. In patients with high pretest probability, a negative CCTA would not adequately rule out significant CAD.

The relatively small number of patients and lack of direct comparison with other diagnostic algorithms suggest further research is needed to clarify the indication for CCTA in acute coronary syndrome.

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Is calcitonin useful for reducing the pain of acute osteoporotic fractures?

Evidence-Based Answer

Calcitonin has been shown to improve acute pain at rest in patients with osteoporotic vertebral fractures, when compared with placebo, and reduce the use of other analgesic medications (SOR **A**, based on a meta-analysis of randomized controlled trials [RCTs]). However, calcitonin is not superior to placebo in patients with hip fracture who have undergone surgical repair. (SOR **B**, based on an RCT.)

A 2005 meta-analysis of 5 RCTs included 246 patients with acute pain from an osteoporotic vertebral fracture.[1] The average age was 72 years and 56% were female. Four studies examined pain levels among patients taking calcitonin compared with placebo.

After 1 week of treatment, pain at rest had significantly improved, as measured by a 10-point visual analog scale (VAS) pain score, compared with placebo (weighted mean difference [WMD] 3.08; 95% confidence interval [CI], 2.64–3.52). At the 4-week follow-up, patients taking calcitonin continued to report decreased pain at rest on the VAS pain score when compared with placebo (WMD 4.03; 95% CI, 3.70–4.35).[1]

All 5 RCTs examined use of other analgesics. Patients in the calcitonin group had decreased use of paracetamol compared with patients in the placebo groups at 1 week; patients taking calcitonin used about 3 fewer pills per patient in a 24-hour period (WMD 2.72; 95% CI, 2.31–3.13). Subgroup analysis of the 4 RCTs with VAS scores while patients were sitting indicated better pain scores than placebo, whether calcitonin was given intranasally (WMD 2.55; 95% CI, 2.16–2.84), rectally (WMD 2.00; 95% CI, 1.46–2.54), or intramuscularly (WMD 4.00; 95% CI, 3.0–5.0).[1]

In a 2002 double-blind RCT, 229 independently living patients older than 65 with acute hip fracture were randomly assigned 200 IU intranasal calcitonin daily or placebo. All patients received surgical intervention and

internal fixation, hemi-endoprosthesis, or total prosthesis. Three months after the operation, mean intensity of pain on VAS was measured and interquartile range (IQR) was recorded as 0 mm (IQR 0.20) in the calcitonin group and 4 mm (IQR 0.35) in the placebo group (P=.15).[2]

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For the initial management of dyspepsia, what strategy is best to prevent recurrent dyspepsia/gastritis?

Evidence-Based Answer

It appears there is little difference in efficacy at 1 year between a *Helicobacter pylori* "test-and-treat" strategy and empiric proton-pump inhibitor (PPI) treatment for initial management of patients with dyspepsia, even if the *H pylori* prevalence rate is as high as 25% to 30%. (SOR **A**, based on a meta-analysis and subsequent randomized controlled trial [RCT].)

A 2008 United Kingdom meta-analysis of 3 RCTs involving 1,547 patients (mean age 42.6 years, 48.6% male) compared a *H pylori* test-and-treat strategy with empiric PPI therapy for the outcome of dyspeptic symptom resolution over 1 year. Dyspepsia was defined more broadly than the Rome III classification as a cluster of symptoms including both epigastric pain and heartburn. One RCT tested patients by *H pylori* serology, and 2 RCTs used the ^{13}C urea breath test. The prevalence of *H pylori* ranged from 23% to 29% in the test-and-treat arm of these trials. For the test-and-treat strategy, a 1-week course of PPI-based triple therapy was used for *H pylori*–positive patients. The empiric PPI strategy utilized 4 weeks of a PPI (given twice daily in 1 trial). No significant difference was noted for 12-month symptom reduction (83% symptomatic with test-and-treat vs 84.5% symptomatic with empiric PPI therapy; relative risk [RR]=0.99; 95% confidence interval [CI], 0.95 to 1.03).[1]

In a 2008 United Kingdom multicenter, primary care–based RCT, 699 patients (49% male) were randomized to either test-and-treat or empiric PPI treatment. Dyspepsia was defined using the Rome I criteria. Patients with a positive ^{13}C urea breath test received 1 week of PPI-based triple therapy followed by daily PPI for 3 weeks. *H pylori* prevalence was 29% in the test-and-treat arm. A repeat ^{13}C urea breath test was conducted 3 months after treatment, and the successful eradication rate was 78%. Patients randomized to the PPI strategy received 4 weeks of daily PPI. No significant difference was observed for 12-month symptom reduction between groups (82% symptomatic in the test-and-treat group vs 83% symptomatic in the PPI group; RR=0.99; 95% CI, –5.4 to 7.6).[2]

Current clinical guidelines published by both the American College of Gastroenterology and the American Gastroenterological Association recommend a test-and-treat strategy for patients <55 years followed by PPI therapy for symptomatic patients. These guidelines note that benefit of the test-and-treat strategy is likely to be reduced if local *H pylori* prevalence is <10% to 20%.[3,4] The Maastricht III Consensus Report of the European Helicobacter Study Group recommends a test-and-treat strategy for adult patients ≤45 years with persistent dyspepsia, but states that in populations of low *H pylori* prevalence (<20%) the test-and-treat and empiric PPI strategies are equivalent treatment options.[5]

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