Clinical question
Do omega-3 fatty acid supplements reduce the risk of recurrent cardiovascular (CV) events in patients with existing cardiovascular disease (CVD)?

Evidence
- Three recent high-quality RCTs1-3 and a subsequent meta-analysis (N=20485)4 did not show CVD or mortality benefit with omega-3 supplementation.
- In 4837 Dutch patients with previous myocardial infarction (MI), major CV events and cardiac interventions at 3.3 years: 14.0% for omega-3s; 13.8% for placebo (P= .93).1
- In 2501 French patients with recent MI, unstable angina, or ischemic stroke, nonfatal MI, stroke, or CV death at 4.7 years: 6.5% for omega-3s; 6.1% for placebo (P=.64).2
- In 3851 German patients after MI,1 sudden cardiac death at 1 year: 1.5% for omega-3s and placebo (P=.84).
- Another RCT published after the meta-analysis also found no CV benefit from 6 years of omega-3 supplementation in 12536 patients with diabetes or “near” diabetes, 59% of whom had previous CVD.5
- Previous RCTs where omega-3 supplementation was beneficial were not blinded6,7 or had low use of standard CV medications (like statins).6
- One RCT8 showed a decrease in all-cause mortality in patients with heart failure (27.3% with omega-3 vs 29.1% with placebo, P=.041), but achieved statistical significance only after adjusting for baseline characteristics.

Context
- Omega-3s are a group of polyunsaturated fatty acids found in fish oils, flax seed, canola oil, and soybeans.
- Lower rates of CVD among Inuit populations were thought to be the result of high marine omega-3 intake.9
- Meta-analyses of lower-level evidence (cohort trials) of omega-3s are inconsistent.10,11
- Canada’s Food Guide,12 the NICE guidelines,13 and the American Heart Association14 encourage consumption of fish 2 or more times a week for prevention of CVD.

Bottom line
Guidelines recommend increased dietary omega-3 consumption, but evidence does not support omega-3 supplements to prevent CV events in patients with CVD.

Implementation
Evidence suggests no benefit and even increased harm with nondietary general supplementation of micronutrients, such as antioxidant vitamins.15 Conversely, lifestyle changes can have substantial benefits—eg, a Mediterranean diet16 reduces CV events (NNT=12 to 14) in patients with high CV risk.17 Physical activity also consistently shows a dose-dependent decrease in mortality.18 We should therefore encourage lifestyle interventions including a reasonable diet, exercise, and smoking cessation—not micronutrient supplementation—for our patients with CVD.