# Omega-3 Fatty Acids in CAD Management

## 1. What is the role of Omega-3 fatty acids in the management of cardiovascular disease in general and atrial dysrhythmias in particular?

**Question submitted by: Dr. Mark Frobb, Surrey, British Columbia**

Numerous prospective and retrospective trials have shown that moderate consumption of omega-3 polyunsaturated fatty acids (PUFA) decreases the risk of cardiovascular events, including myocardial infarction and sudden cardiac death. Postulated mechanisms to explain the benefits of omega-3 PUFA include improved sympathovagal balance, antiarrhythmic effects, anti-platelet action and anti-inflammatory effects. For patients with documented cardiovascular disease, the Canadian Cardiovascular Society and the American Heart Association endorse consumption of omega-3 PUFA, either in the form of fish oil supplements at a dose of 1 g. o. d. (in capsule or liquid form), or in the form of fatty fish, such as herring and tuna eaten on a weekly basis. However, insufficient data is currently available regarding fish oil consumption and cardiac arrhythmia management. Despite some short-term small-scale studies which have suggested that preoperative use of omega-3 PUFA may reduce the incidence of atrial fibrillation following bypass surgery, other studies have demonstrated neutral or even negative effects, underscoring the need for additional studies before omega-3 PUFA can be routinely recommended for the management of arrhythmias.

Resources
1. Yokoyama M, Origasa H, Matsuzaki M, et al: Effects of Eicosapentaenoic Acid on Major Coronary Events in Hypercholesterolemic Patients (JELIS): A Randomized Open-label, Blinded Endpoint Analysis. Lancet 2007; 369:1090-8.
2. Kris-Etherton PM, Harris WS, Appel LJ, for the American Heart Association Nutrition Committee. Fish Consumption, Fish Oil, Omega-3 Fatty Acids, and Cardiovascular Disease. Circulation 2002; 106:2747-57.
3. Heidt MC, Vician M, Stracke SK, et al: Beneficial Effects of Intravenously Administered N-3 Fatty Acids for the Prevention of Atrial Fibrillation After Coronary Artery Bypass Surgery: A Prospective Randomized Study. Thorac Cardiovasc Surg. Aug, 2009; 57(5):276-80.
4. Burr ML, Ashfield-Watt PA, Dunstan FD, et al: Lack of Benefit of Dietary Advice to Men with Angina: Results of a Controlled Trial. Eur J Clin Nutr 2003; 57:193-200.

Answered by:
**Dr. Theodore Fenske**



> Moderate consumption of omega-3 PUFA decreases the risk of cardiovascular events, including myocardial infarction and sudden cardiac death.

# Role of Beta Blockers for Patients with CAD

## 2. What is the role of beta-blockers in CAD, hypertensive or high-cardiac risk patients undergoing non-cardiac major surgery? How long should they be continued post-op?

**Question submitted by: Dr. Richard Kohn, St. Laurent, Quebec**

This is an important and somewhat controversial question. Cardiac events remain the major cause of morbidity and mortality in patients undergoing non-cardiac surgery. The risk of cardiac complications in any given patient depends upon the condition of the patient before surgery, the prevalence of heart disease, and the size and duration of the operations that are planned. There is some evidence that beta blockers may not be beneficial in low-risk patients undergoing low or moderate risk of surgery. However, there is growing evidence that there is a benefit when beta blockers are given early and titrated to achieve a heart rate of 60 to 70 beats per minute in high risk patients undergoing high-risk surgery. The first step then is to preoperatively assess people in order to stratify them according to the risk of cardiac events. For patients at low risk, all testing can be skipped. For Intermediate patients, who for example are known to have coronary disease that is currently asymptomatic, some testing may be required to assess their actual risk. High risk patients, those with known coronary disease who are symptomatic but stable, hypertensives, or those with multiple other cardiac risk factors, should undergo echocardiography and or exercise stress testing.

The European Society of cardiology has just recently (September 2009) released guidelines for non-cardiac surgery assessment and management, particularly dealing with use of ASA and beta blockers. They recommend that in high risk patients, beta blockers should be started prior to surgery, preferably a month before, but at least a week prior to surgery and titrated to achieve a heart rate of 60 to 70 beats per minute. Following surgery, especially in high-risk patients, one can make a good argument for the continuation of beta blockers indefinitely. If this is unacceptable for clinical reasons, at least a month post surgery should be covered.

Answered by:
**Dr. Wayne Warnica**

Cardiac events remain the major cause of morbidity and mortality in patients undergoing non-cardiac surgery.