

COMMENTS AND RESPONSES

Response to Comment on: Kromhout et al. n-3 Fatty Acids, Ventricular Arrhythmia-Related Events, and Fatal Myocardial Infarction in Postmyocardial Infarction Patients With Diabetes. Diabetes Care 2011;34: 2515-2520

In the Alpha Omega Trial, we observed that an additional amount of n-3 fatty acids significantly reduced the number of ventricular arrhythmia-related events and fatal myocardial infarctions (MIs) in post-MI patients with diabetes (1). In their letter, Giordani et al. (2) suggest that an abnormal cardiac repolarization, due to an imbalance of the autonomic nervous system, could be the link between diabetes and cardiac arrhythmias. In fact, we already observed in 1996 in the population-based Zutphen Elderly Study, that corrected QT prolongation was associated with the insulin resistance syndrome, and we concluded that

insulin resistance may affect cardiac repolarization (3).

However, since then many other metabolic variables have been suggested. Therefore, it seems highly speculative to ascribe a reduction of ventricular arrhythmia-related events and fatal MI in our study to a single mechanism. Moreover, many other metabolic changes have been suggested as an explanation for sudden death in diabetic patients (4). Patients with diabetes who also have had an MI are at high risk of ventricular arrhythmia-related events and sudden death. These risks seem to be related to a large extent to factors specific to this metabolic disease, and our study results suggest that an arrhythmogenic substrate may be part of this process, independent of progression of coronary artery disease. It seems likely that factors such as atherosclerotic heart disease, direct metabolic alterations, ion channel abnormalities, and autonomic dysfunction may all contribute to create the substrate for sudden cardiac death in the diabetic heart.

Our finding that an additional amount of dietary n-3 fatty acids has a protective effect against ventricular arrhythmia-related events and fatal MI in post-MI patients with diabetes may relate to several of the above-mentioned mechanisms. The effect on the autonomic nervous system, as reported by Giordani et al., is probably one of them.

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