

Vascular Disease Risks: Known and the Unknown?

Authors: Rao Ghr Emeritus Professor, University of Minnesota, Gundu HR Rao, Emeritus Professor, Laboratory Medicine and Pathology, Director, Thrombosis Research, Lillehei Heart Institute, University of Minnesota, Minneapolis

Concluding Remarks:

Framingham Heart Study, which was initiated some 70 years ago, by the NHLBI and BUSM, has provided valuable information, about the modifiable risk factors responsible for the development of vascular diseases. It is for the first time, has given the much need evidence, about the risks for vascular diseases, to the preventive cardiologists, and the caregivers, and helped them develop appropriate risk management strategies.

There is considerable evidence, to suggest an important role for the over production of reactive oxygen species (ROS), in the pathogenesis of vascular diseases. These ROS can be released from nicotinamide adenine dinucleotide oxidase, xanthine oxidase, lipoxygenase, mitochondria or the uncoupling of nitric oxide synthetase [25]. The transcription factor Nrf2 (nuclear factor, erythroid-2-related factor-2, Nrf-2) for instance, a master regulator of detoxification, anti-oxidant, anti-inflammatory and other cytoprotective mechanisms, is raised by health promoting factors. This transcription factor activates the transcription of over 500 genes (so called survival genes) in the human genome, most of which have cytoprotective functions. The most healthful diets such as Mediterranean and Okinawa are rich in Nrf2 raising nutrients. Recent studies however, have demonstrated that induction of Nrf2 and Ho-1 expression by **Protandim is associated with a reduction in oxidative stress and fibrosis, preservation of the right ventricular (RV) microcirculation and RV function [26]**. Studies by the pioneer scientist, professor Joe McCord and associates on the effect of **Protandim** on various pathways have shown, significant modulation by **Protandim** not only of pathways involving antioxidant enzymes, but also those related to Colon Cancer, Cardiovascular disease and Alzheimer's disease [27,28].

