“Selenium Nutrition - Why Should You Consider This a Factor in Atherosclerosis”

Summary

Professor Hesketh reviewed the history of selenium (Se) as an essential nutrient.

He emphasized that Se intake varies with the soil geographical source of the food in the diet and depends upon the Se content of the soil. He showed data indicating that blood Se levels in people in areas of Europe and Brazil are lower than USA. Se status is sub-optimal for selenoprotein function in many populations (e.g Europe and Brazil).

He described that Se has biological function in 25 selenoproteins, including antioxidant enzymes such as glutathione peroxidases. He showed data indicating that glutathione peroxidase 4 is important for mitochondrial function. He also presented evidence and arguments that selenoproteins are important in endothelial cell function;

1. there is a metabolic relationship between homocysteine, methylation and glutathione peroxidase activity;

2. A genetic variant in glutathione peroxidase 4 affects VCAM-1 expression;

3. Swedish studies suggest Se and ubiquinone supplementation may reduce cardiovascular disease mortality.

Effects of marginally low Se status on cardiovascular disease are inconclusive but the biochemistry indicates that it is important to consider Se status and selenoprotein genetics as in future studies of cardiovascular disease. Baseline Se status is critical in the design and evaluation of such studies.