Can serum zinc prevent pneumonia in nursing home residents?

Meydani, S. N., Barnett, J. B., Dallal, G. E., Fine, B. C., Jacques, P. F., Leka, L. S., & Hamer, D. H. (2008, April). Serum zinc and pneumonia in nursing home elderly. *The American Journal of Clinical Nutrition, 87*(4), 1167-1173.

Background

As we age there is a decline in our immune function causing an increased risk for pneumonia and other types of infections. Although part of this decline is simply due to age, malnutrition also plays a critical role. Zinc, in particular, has been shown to play an important immune function by aiding the regulation of T-cells. Connections have been made between zinc deficiency in children and incidence of pneumonia. Older adults in long term care are especially at risk for pneumonia.

What Was Done?

617 residents from 33 nursing homes in Boston participated in a controlled trial on the effect of vitamin E supplementation (200IU/d) on respiratory infections. To reduce the variability in the vitamin E trial, participants were given a daily capsule containing 50% of the Recommended Daily Allowance (RDA) for essential micronutrients, including zinc. Aside from studying vitamin E status, researchers also studied zinc serum levels to see if certain levels of could predict increased incidence of pneumonia. Participants were categorized by their serum zinc levels (with the cut off being 70 micrograms). Researchers looked for pneumonia-related outcomes such as incidence, days with pneumonia, antibiotics prescribed, and death due to pneumonia. It was hypothesized that a lower serum zinc level would be associated with increased incidence of pneumonia and pneumonia-related outcomes.

What Was Found?

Compared to people with low zinc serum concentrations, participants with normal zinc serum concentrations had a lower incidence of pneumonia, fewer new antibiotic prescriptions and a shorter duration of illness and antibiotic use (on average 1.3 days less). In addition, it was found that having a normal zinc serum concentration reduced the risk of all-cause mortality. It is important to note, however, that on average, participants with lower serum zinc were older. Also participants were supplemented with Vitamin E and 50% of the RDA of zinc and other vitamins and minerals.

Importance of this research:

This research is important as it looks at new ways of preventing a common and often deadly outcome in long term care residents. Further research is required to isolate the effects of serum zinc concentration and incidence of penumonica, as well as the effects of supplementation.

What Still Needs to be Done?

Low zinc consumption has been reported in the elderly. This research implies that a future low-cost preventive method to reducing the incidence and severity of pneumonia, as well as morbidity, could be supplementation with zinc. Future research is necessary to support these ideas, and a randomized, double-blind, controlled trial is suggested.

Written by Megan Kraus, 2010