

# Abstract

Am J Clin Nutr. 2007 Oct;86(4):1167-73.

## Serum zinc and pneumonia in nursing home elderly.

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**BACKGROUND:** Zinc plays an important role in immune function. The association between serum zinc and pneumonia in the elderly has not been studied.

**OBJECTIVE:** The objective was to determine whether serum zinc concentrations in nursing home elderly are associated with the incidence and duration of pneumonia, total and duration of antibiotic use, and pneumonia-associated and all-cause mortality.

**DESIGN:** This observational study was conducted in residents from 33 nursing homes in Boston, MA, who participated in a 1-y randomized, double-blind, and placebo-controlled vitamin E supplementation trial; all were given daily doses of 50% of the recommended dietary allowance of essential vitamins and minerals, including zinc. Participants with baseline (n = 578) or final (n = 420) serum zinc concentrations were categorized as having low (<70 microg/dL) or normal (>or=70 microg/dL) serum zinc concentrations. Outcome measures included the incidence and number of days with pneumonia, number of new antibiotic prescriptions, days of antibiotic use, death due to pneumonia, and all-cause mortality.

**RESULTS:** Compared with subjects with low zinc concentrations, subjects with normal final serum zinc concentrations had a lower incidence of pneumonia, fewer (by almost 50%) new antibiotic prescriptions, a shorter duration of pneumonia, and fewer days of antibiotic use (3.9 d compared with 2.6 d) (P <or= 0.004 for all). Normal baseline serum zinc concentrations were associated with a reduction in all-cause mortality (P = 0.049).

**CONCLUSION:** Normal serum zinc concentrations in nursing home elderly are associated with a decreased incidence and duration of pneumonia, a decreased number of new antibiotic prescriptions, and a decrease in the days of antibiotic use. Zinc supplementation to maintain normal serum zinc concentrations in the elderly may help reduce the incidence of pneumonia and associated morbidity.

PMID: 17921398