American Journal of Clinical Nutrition, Vol. 86, No. 3, 714-717, September 2007

ORIGINAL RESEARCH COMMUNICATION

An association of serum vitamin D concentrations < 40 nmol/L with acute respiratory tract infection in young Finnish men[1,2,3]

Ilkka Laaksi, Juha-Petri Ruohola, Pentti Tuohimaa, Anssi Auvinen, Riina Haataja, Harri Pihlajamäki and Timo Ylikomi

[1] From the Departments of Cell Biology (IL and TY) and Anatomy (PT), Medical School, University of Tampere, Tampere, Finland; the Department of Epidemiology, Tampere School of Public Health, University of Tampere, Tampere, Finland (AA); Tampere School of Public Health, University of Tampere, Tampere, Finland (RH); the Garrison Hospital, Pori Brigade, Finnish Defence Forces, Säkylä, Finland (J-PR); the Department of Clinical Chemistry, Tampere University Hospital, Tampere, Finland (PT and TY); and the Department of Medical Services, Defence Staff, Finnish Defence Forces, and the Institute of Military Medicine, Central Military Hospital, Helsinki, Finland (HP)

Background: The effects of vitamin D in regulating bone mineralization are well documented. The action of vitamin D as a key link between Toll-like receptor activation and antibacterial responses in innate immunity has recently been shown. The data suggest that differences in the ability of human populations to produce vitamin D may contribute to susceptibility to microbial infection.

Objective: We aimed to explore whether an association exists between vitamin D insufficiency and acute respiratory tract infection in young Finnish men.

Design: Young Finnish men (*n* = 800) serving on a military base in Finland were enrolled for this study. Their serum 25-hydroxyvitamin [25(OH)D] concentrations were measured in July 2002. They were followed for 6 mo, and the number of days of absence from duty due to respiratory infection were counted.

Results: The mean (± SD) serum 25(OH)D concentrations were 80.2 ± 29.3 nmol/L (*n* = 756). Subjects with serum 25(OH)D concentrations < 40 nmol/L (*n* = 24) had significantly (*P* = 0.004) more days of absence from duty due to respiratory infection (median: 4; quartile 1–quartile 3: 2–6) than did control subjects (2; 0–4; *n* = 628; incidence rate ratio 1.63; 95% CI: 1.15, 2.24). We found a significant (*P* = 0.004) association between serum 25(OH)D concentrations and the amount of physical exercise before induction into military service. We also found significantly (*P* < 0.001) lower serum 25(OH)D concentrations in subjects who smoked (72.8 ± 26.6 nmol/L; *n* = 192) than in control subjects (82.9 ± 29.7 nmol/L; *n* = 537).

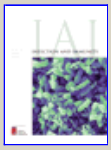
Conclusion: Clinical trials of vitamin D supplementation are needed to investigate whether it enhances immunity to microbial infections.

Key Words: Vitamin D • respiratory infection • insufficiency • men • public health • 25-hydroxyvitamin D

This article has been cited by other articles:

Journal of Nutrition HOME

H. Friis, N. Range, M. L. Pedersen, C. Molgaard, J. Changalucha, H. Krarup, P. Magnussen, C. Soborg, and A. B. Andersen
Hypovitaminosis D Is Common among Pulmonary Tuberculosis Patients in Tanzania but Is Not Explained by the Acute Phase Response
J. Nutr., December 1, 2008; 138(12): 2474 - 2480.
[Abstract] [Full Text] [PDF]



Infection and Immunity HOME

J. H. White
Vitamin D Signaling, Infectious Diseases, and Regulation of Innate Immunity
Infect. Immun., September 1, 2008; 76(9): 3837 - 3843.
[Full Text] [PDF]