Author's response to reviews

Title: Vitamin C supplement use may protect against gallstones: an observational study on a randomly selected population

Authors:

Thomas Walcher (thomas.walcher@uniklinik-ulm.de)
Mark M Haenle (mark.haenle@uni-ulm.de)
Martina Kron (martina.kron@uni-ulm.de)
Birgit Hay (birgit.hay@uni-ulm.de)
Richard A Mason (Richard.Mason2@va.gov)
Daniel Walcher (daniel.walcher@uniklinik-ulm.de)
Gerald Steinbach (gerald.steinbach@uniklinik-ulm.de)
Peter Kern (peter.kern@uniklinik-ulm.de)
Isolde Piechotowski (isolde.piechotowski@rps.bwl.de)
Guido Adler (guido.adler@uniklini-ulm.de)
Bernhard O Boehm (bernhard.boehm@uniklinik-ulm.de)
Wolfgang Koenig (wolfgang.koenig@uniklinik-ulm.de)
Wolfgang Kratzer (wolfgang.kratzer@uniklinik-ulm.de)
EMIL study group (wolfgang.kratzer@uniklinik-ulm.de)

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Manuscript entitled: “Vitamin C supplement use may protect against gallstones: an observational study on a randomly selected population” by Walcher et al.

“A vitamin is a substance that makes you ill if you don’t eat it.”

(Albert von Szent-Györgyi Nagyrápolt, winner of the 1937 Nobel Prize for Medicine “for the description of vitamin C and the discovery that oxygen combines with hydrogen in cellular respiration”)

Dear Professor Norton,

we would like to submit the enclosed manuscript for publication in BMC Medicine.

Disorders of the gallbladder are a major cause of morbidity and a leading indication for hospital admissions. Animal experiments have shown a protective effect of vitamin C on the formation of gallstones. Some data in humans also suggest an association between reduced vitamin C intake and increased occurrence of gallstone disease.

The primary objective of the present study was to evaluate the potential protective effect of regular vitamin C supplementation on gallstone formation, as assessed by ultrasonography and patient’s history in a cross-sectional survey of randomly selected subjects from the general population.

We found a prevalence of gallstones in this population of 7.8% (167/2129). Subjects reporting vitamin C supplementation showed a prevalence of 4.7% (11/232), whereas in subjects without regular vitamin C supplementation, the prevalence was 8.2% (156/1897). Female gender, hereditary predisposition, increasing age, and body-mass index (BMI) were associated with risk of gallstone formation. In logistic regression analysis adjusted for these factors, vitamin C supplementation (odds ratio, OR 0.34; 95% confidence interval, CI 0.14 to 0.81; P=0.02), increased physical activity (OR 0.64; 95% CI, 0.43 to 0.94; P=0.03), and higher total cholesterol (OR 0.66; 95% CI, 0.53 to 0.82; P<0.001) showed a protective effect.

To our knowledge, this is the first survey in a randomly selected population sample to
investigate the relationship between vitamin C supplementation and gallstone prevalence.

We feel that such data constitute important new and clinically useful information which will be of interest to the readers of BMC Medicine.

As the corresponding author, I had full access to all the data in the study and had final responsibility for the decision to submit the paper. All authors have read the manuscript and approved submission. This manuscript has not been published and is not being considered for publication elsewhere in whole or part in any language except as an abstract. There are neither conflicts of interest nor any financial association in relation to this manuscript.

We would be very pleased if this manuscript might be considered suitable for publication in BMC Medicine.

Looking forward to hearing from you.

Sincerely,

Wolfgang Kratzer, MD,
Professor of Medicine/Gastroenterology