Vitamin C for preventing and treating pneumonia.

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Author information

Abstract

BACKGROUND: Pneumonia is one of the most common serious infections, causing two million deaths annually among young children in low-income countries. In high-income countries pneumonia is most significantly a problem of the elderly.

OBJECTIVES: To assess the prophylactic and therapeutic effects of vitamin C on pneumonia.


SELECTION CRITERIA: To assess the therapeutic effects of vitamin C, we selected placebo-controlled trials. To assess prophylactic effects, we selected controlled trials with or without a placebo.

DATA COLLECTION AND ANALYSIS: Two review authors independently read the trial reports and extracted data.

MAIN RESULTS: We identified three prophylactic trials which recorded 37 cases of community-acquired pneumonia in 2335 people. Only one was satisfactorily randomised, double-blind and placebo-controlled. Two trials examined military recruits and the third studied boys from "lower wage-earning classes" attending a boarding school in the UK during World War II. Each of these three trials found a statistically significant (80% or greater) reduction in pneumonia incidence in the vitamin C group. We identified two therapeutic trials involving 197 community-acquired pneumonia patients. Only one was satisfactorily randomised, double-blind and placebo-controlled. That trial studied elderly patients in the UK and found lower mortality and reduced severity in the vitamin C group; however, the benefit was restricted to the most ill patients. The other therapeutic trial studied adults with a wide age range in the former Soviet Union and found a dose-dependent reduction in the duration of pneumonia with two vitamin C doses. We identified one prophylactic trial recording 13 cases of hospital-acquired pneumonia in 37 severely burned patients; one-day administration of vitamin C had no effect on pneumonia incidence. The identified studies are clinically heterogeneous which limits their comparability. The included studies did not find adverse effects of vitamin C.

AUTHORS’ CONCLUSIONS: The prophylactic use of vitamin C to prevent pneumonia should be further investigated in populations who have a high incidence of pneumonia, especially if dietary vitamin C intake is low. Similarly, the therapeutic effects of vitamin C should be studied, especially in patients with low plasma vitamin C levels. The current evidence is too weak to advocate prophylactic use of vitamin C to prevent pneumonia in the general population. Nevertheless, therapeutic vitamin C supplementation may be reasonable for pneumonia patients who have low vitamin C plasma levels because its cost and risks are low.

Update of Vitamin C for preventing and treating pneumonia. [Cochrane Database Syst Rev. 2007]

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