

Zinc Supplements to Prevent Middle Ear Infections: Evidence Is Weak

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A new Cochrane review did not find clear evidence that taking zinc supplements reduces the occurrence of middle ear infections or otitis media in healthy children.

About 164 million people around the world have long-term hearing loss caused by inflammation of the middle ear, and about 90 percent live in developing countries.

“Deafness is a disaster for these children. It can lead to their not doing well at school and being disadvantaged for life. Anything that prevents deafness is important,” said lead review author Katherine Abba, with the International Health Group of the Liverpool School of Tropical Medicine, in England.

Zinc, found in many foods, is an important infection fighter, but individuals must consume it regularly for it to be effective. In developing countries where poor diets and diarrhea are common, over 60 percent of kids under five have [zinc deficiency](#). A number of studies support the use of zinc in preventing and treating pneumonia in disadvantaged children.

Researchers wondered if zinc might also help prevent otitis media. The reviewers identified 12 pertinent studies of healthy children ages five years or younger, which took place in 10 low- or middle-income countries.

In the United States, doctors do not typically use zinc to prevent middle ear infections.

Diane Heatley, M.D., of the division of pediatric otolaryngology with University of Wisconsin-Madison, does not use zinc implementation in her practice.

“It makes sense that severely malnourished children will be more susceptible to infections and illnesses of all kinds,” Heatley said. “Any improvement in their overall nutritional status should be reflected in fewer illnesses, including otitis media.”

The reviewers found that in one small study of severely malnourished children, [zinc supplements](#) reduced middle-ear infection. In another study of healthy infants living in a poor urban community, those who received zinc supplements showed a lower incidence of middle ear infections.

However, Abba said, “These studies should be viewed with caution. While there is some evidence that zinc supplementation is beneficial, further research using rigorous randomized trial designs would be worthwhile.”

Otitis media generally occurs as a complication of viral upper respiratory tract infection. Acute otitis media largely results from poor Eustachian tube functioning in young children.

Richard M. Rosenfeld, M.D., chairman of otolaryngology at Long Island College Hospital and chairman of otolaryngology at SUNY, is very familiar with middle ear infections.

“Despite my experience, this is the first time I have heard of zinc as a preventive measure,” Rosenfeld said. “I have no direct clinical

experience with zinc and have not encountered patients using it.”

He said that while there are several factors that lead to acute otitis media, Eustachian tube function, which largely is a heritable trait, overwhelmingly is the most important factor: “I doubt that any quantity of zinc would change eustachian tube function in a clinically meaningful way. The positive effect in severely malnourished children likely relates to an impact on immune system function, not the Eustachian tube.”

“An accurate diagnosis of otitis media is notoriously difficult to make, particularly in small wiggly infants,” Heatley said. “Studies that consider otitis media diagnosis their primary outcome have to decide how they are making the diagnosis such as visually, with tympanograms or other methods.”

She added that clinicians who make the diagnosis have to show expertise at making an accurate assessment of the status of the middle ear. “There is no blood test or X-ray that will make the diagnosis. The review did not have the diagnostic rigor to report an accurate incidence of otitis media in their participants.”

“The fact that there was only one study with a significant impact of zinc (39 patients), is meaningless,” Rosenfeld said. “More telling is that the larger studies which had a low risk of bias, consistently did not find a difference.”

Rosenfeld said studies must always weigh potential benefits (which don’t exist in this case) against potential harms. “Many of the listed studies said some people had problems with vomiting or regurgitation with zinc supplements. That clearly makes zinc supplements inappropriate for preventing otitis in the absence of benefit.”

More information: Abba K, Gulani A, Sachdev HS. Zinc supplements

for preventing otitis media. Cochrane Database of Systematic Reviews 2010, Issue 2.

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