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Correspondence

Treatment of croup with topical ionic zinc

Sir:

While writing my article for this journal titled “Zinc lozenges as cure for the common cold – a review and hypothesis” [1], I reflected upon the long 25-year history of zinc in treating colds, and also remembered that the history of use of zinc to treat croup in infants and young children was much longer. The first published use that I found for treating croup with zinc was in 1899; yes, eighteen ninety-nine [2]. Apparently, topical zinc sulfate was routinely used to treat croup effectively during the 19th century. In 1984, Linus Pauling mentioned to me that he remembered physicians in the 1930s treating croup by painting the throats of infants and young children with mild zinc sulfate solutions. I used zinc gluconate tablets (50 mg zinc) as throat lozenges to treat croup in my young children during the late 1970s and early 1980s. Croup disappeared in about 15–30 min from a zinc gluconate lozenge treatment in my children. Without ionic zinc, their croup lasted about 5 days and required medical intervention. Even so, if one conducts a PubMed search, there are no entries for “croup” and “zinc”. I think it is important to revive old, effective treatments and try to explain their actions.

Croup usually has both allergy and infectious components. Please remember that in my article [1], I mentioned that I used a half of an 18-mg zinc (zinc acetate) lozenge twice daily to effectively treat my severe respiratory allergy. Strongly astringent, ionic zinc compounds like zinc acetate, gluconate, chloride and sulfate temporarily prevent the release of all vasoactive mast cell and basophil granule ingredients including histamine, prostaglandins, leukotrienes, serotonin, bradykinins and cytokines generally. There are no similar effects from bound, non-astringent zinc compounds. Concentrated ionic zinc is believed to protect cells from toxins and viruses including parainfluenza viruses, the cause of about 75% of croup, by non-specific means [3]. Ionic zinc is also anti-viral to the respiratory syncytial virus (RSV) [4], a cause of some cases of croup. Complete inhibition of RSV plaque formation was observed at 1–10 mM, representing $\geq 10^6$ -fold reductions [4], which is the same range produced by effective zinc acetate lozenges. Herpes simplex occasionally causes prolonged croup [5], and ionic zinc has been long-known to be anti-viral to the herpes simplex viruses [6]. Common colds are often associated with croup, and topical ionic zinc was effective for my children’s colds with croup. Cell med-

iated immunity (CMI) is dependent upon zinc, and without sufficient zinc CMI can fail [7]. Zinc deficiency accounted for 6.7% of pneumonia deaths among children between 6 months and 5 years of age [8], and there is a global need for more zinc in the diet, especially in the diets of children [9]. Perhaps croup is a natural consequence of inadequate protective zinc in the diet.

Obviously, it is my hypothesis that the barky, raspy cough of croup might be effectively treated with topical ionic zinc and it should offer hope and encouragement to physicians and parents willing to try an alternative treatment for croup.

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