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Letter to the Editor

More research and clinical attention is needed on nutrition to prevent influenza incidence and mortality

Dear Editor

I read with interest your 12/24/19 Papadimitriou paper on factors affecting influenza mortality in a Swiss hospital [1]. One factor that I found especially interesting was the huge influence on malnutrition in increasing mortality. Malnutrition was present in 17 out of 25 (68%) non-survivors but in only 44 of 416 (10.6%) of survivors (OR 25.0, 95% CI 4.5–138.8, $p < 0.001$) [1].

Malnutrition is commonly seen in hospitalized patients in both the developed and developing world. A review of 110 published studies of acute care patients (mostly from the developed world) reported that malnutrition incidence ranged from 13 to 78% in all hospitalized patients and 42–91% of hospitalized elderly [2].

Malnutrition greatly increases the risk of nosocomial infection in hospitalized patients. A French study of 630 hospitalized patients reported that the Odds Ratio risk for hospital acquired infections was 4.98 times as great (95% CI of 4.6–6.4) in severely malnourished patients as compared to well nourished patients [3].

A small number of studies have reported that good nutrition can reduce influenza severity and mortality. During the 1918 Influenza pandemic, it was observed that regions of India experiencing famine had significantly higher influenza mortality rates as compared to non-famine regions [4]. A study of 717 older adults with community acquired pneumonia reported that vitamin E supplements significantly reduced hospital readmission rates (OR=0.37, 95% CI 0.16–0.90, $p = 0.28$) [5]. A German study of 226 patients with influenza A, supplementation with 300 mg. vitamin C a day was associated with a significantly reduced risk of getting pneumonia (OR 0.18, 95% CI 0.04–0.85, $p = 0.03$) [6]. An Italian study of 262 adults reported that supplementation of 600 mg. N-acetylcysteine twice daily for 6 months was associated with a 69% reduction in developing symptomatic influenza (OR 0.09, 95% CI 0.03–0.28, $p < 0.0001$) [7]. Oral probiotic use has been associated with reduced gastrointestinal and respiratory infections and a clinical trial is currently underway to evaluate the effects of probiotic *Lactococcus rhamnosus* and *Bifidobacterium animalis* in reducing infection rates in care home residents [8].

Much more research and clinical attention is needed to reduce the tragic mortality toll of hospital acquired influenza and other viral,

bacterial and fungal nosocomial infections. I hope the

European Journal of Internal Medicine can publish more good studies on nutrition and infection.

Conflict of Interest Statement

Luke Curtis MD, MS- More Research and Clinical Attention is Needed on Nutrition to Prevent Influenza Incidence and Mortality.

I disclose no conflict of interest. I received no funding for this study. I have no financial interest in food or food supplement companies.

Thanks for your time and editorial consideration. Hope you have space to print my concise letter.

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Luke Curtis

1028 La Bonne Parkway #C, Manchester, MO 63088, USA

E-mail address: LukeCurtis1328@gmail.com.<https://doi.org/10.1016/j.ejim.2020.01.023>

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