

**SWINE FLU
EMERGING THREAT****ALTERNATIVE
MEDICINE**

Alternative Approach to Combat H1N1 Virus

Vishal R. Tandon, Zaffar Abbas, Samina Farhat, Zorawar Singh

Little is known about the effect of *physical exercise* and adoption of healthy life style on influenza-associated mortality. Exercising at low to moderate frequency has been shown to be associated with lower risk of influenza-associated mortality as compared with never or seldom exercise. The beneficial effects of exercise by modulation of immune function have been explained in terms of increase viral clearance function, antibody titer and beneficial neuroendocrine factors (1).

Heavy drinkers and chronic abuse of *alcohol* has been shown to sharply increase in morbidity, mortality and pulmonary Influenza virus titers relative to controls. These increases in influenza correspond with inhibited pulmonary influenza-specific CD8 T cell responses. Further, chronic ethanol consumption results in an enhanced pulmonary lesion severity suggesting that chronic alcohol consumption may increase the risk for severe influenza virus infections by altering the pulmonary inflammatory environment and CD8 T cell response (2).

Smoking is associated with increased risk for respiratory infections. Current guidelines suggest health care providers to assess and advise current smokers to quit, as well as promote receipt of influenza and pneumococcal vaccinations among current smokers to help prevent respiratory infections (3). Hence, alcohol consumption and smoking should be avoided as a preventive measure during Influenza Pandemic.

Garlic is alleged to have antimicrobial and antiviral properties that relieve the common cold. Though, there is insufficient clinical trial evidence regarding the effects of garlic in preventing or treating the Influenza infection. A single trial (4) suggested that garlic may prevent occurrences of the common cold or probably any flu, but more studies are needed to validate this finding.

Isoflavones and their related flavonoid compounds exert antiviral properties in vitro and in vivo against a wide range of viruses. Genistein is, by far, the most studied soy isoflavone in this regard and it has been shown to inhibit the infectivity of enveloped or nonenveloped viruses, as well as single-stranded or double-stranded RNA or DNA viruses including adenovirus, herpes simplex virus, human immunodeficiency virus, porcine reproductive, respiratory syndrome virus, Influenza and rotavirus (5). Thus, isoflavones and flavonoid rich dietary substances like oats, wheat, sunflower, pumpkin, poppy, linseeds, soya beans and all soya based products, kidney beans, green split peas, red onions, green beans, sweet peppers, garlic, tomatoes, bean sprouts, citrus fruits should be encouraged in diet.

Green tea is very effective antiviral. It decreases the production of the cytokine (catechins) TNF-alpha and inhibits neuraminidase. Thus, it may have antiviral activity that is equal to other antivirals such as Tamiflu. A unique nutrient mixture (NM), containing ascorbic acid, green

From the PG Department of Pharmacology, Govt Medical College Srinagar, J&K-India

Correspondence to : Dr Vishal R Tandon, Lecturer/Consultant, Department of Pharmacology, Govt Medical College Srinagar, J&K.



tea extract, lysine, proline, N-acetyl cysteine, selenium among other micronutrients, has been shown to exert anti-carcinogenic and anti-atherogenic activity both in vitro and in vivo and inhibitory effect on replication of influenza virus. This effect was observed in all influenza virus subtypes tested, including A/H1N1, A/H3N2 and B virus (6). It has been also reported that green-tea extract (GTE) inhibits the growth of influenza virus by preventing its adsorption. It exerts an additional inhibitory effect on the acidification of intracellular compartments such as endosomes and lysosomes and thereby inhibits the growth of influenza A and B viruses (7).

Fresh apple juice including the pulp and skin has greater antiviral activity than heated commercial apple juice by virtue of its antioxidant property and anti-influenza viral activity (8).

Hemagglutination (HA) of red blood cells (RBC) caused by representatives of both influenza virus A subtypes (H1N1) and H3N2) and the B type is inhibited by **Cranberry juice** by inhibiting influenza virus adhesion to cells and subsequent infectivity (9).

Vitamin C and E rich diet boosts the immune system and is an antiviral by blocking the enzyme neuraminidase, reducing the production of cytokines TNF- α and IL-6 (10).

Alternative approaches like exercise, adopting healthy life style, maintaining hygiene, avoiding alcohol, smoking and consumption of diet shown to possess antiviral/ant influenza activity may be protective against influenza including H1N1 in a natural way. Exploring and adopting alternative ways to combat H1N1 is important particularly when we have very limited preventive or treatment options that too facing threat of resistance.

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