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Prevention and Treatment of Viral Infections by Natural Therapies

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Editorial

Many viral infections are still causing tremendous threat to human being such as HIV, coronavirus, SARS, avian influenza, swine flu, Dengue virus, Ebola virus, etc. There are no efficient conventional medications or vaccines for most of these viruses. Consequently alternative natural medications are an urgent requirement to fill the gap of unavailability of conventional therapies or vaccines. Complementary and alternative medicine has been used for centuries in many societies to treat various illnesses, including viral infections. Herbal, dietary, complementary, and natural therapies have been used widely for prevention and treatment of viral infections. Some of these medications are introduced in the present article. Respiratory viruses are a major cause of influenza-like illness (ILI) symptoms in children and adults, leading to substantial morbidity and mortality each year. Several herbal extracts were proved effective for prevention and treatment of respiratory viral infections that based on scientific ground. Among these herbs are licorice roots, North American ginseng, berries, Echinacea, pomegranate, and guava tea. The active ingredients of these plants against flu and cold viruses are neuraminidase inhibitors, glycyrrhizin, polyphenol, baicalin, etc. The mechanism of actions that plants extracts could fight influenza through: neuraminidase inhibition, preventing virus budding, assistance of viral bounding to natural antibodies, stimulation of IFN-gamma production by T cells, inhibition viral hemagglutination activity, inhibition viral binding to and penetration into host cells, enhancement production of anti-influenza virus immunoglobulin, synthesis inhibition of both viral RNA and protein, replication suppression of influenza virus, secretion induction of type I IFN and pro-inflammatory cytokines with subsequent stimulation of the antiviral activity, and exertion virion structural damage [1]. Respiratory syncytial virus (RSV) is a common cause bronchiolitis in children that followed by inflammation and asthma-like symptoms. A preventive therapy for this virus has not been developed yet. Chang et al. investigated the anti-inflammatory function of fungal immunomodulatory protein on RSV. FIP-fve is an immunomodulatory protein isolated from *Flammulina velutipes*. The results of the study suggested that FIP-fve decreases RSV replication, RSV-induced inflammation and respiratory pathogenesis. The investigators concluded that a natural compound extracted from *F.velutipes* (FIP-fve) may be a safe agent for viral prevention and even therapy [2]. It is now recognized that an overwhelming inflammatory response is the cause of human deaths from infection with the avian H5N1 influenza [3]. Earthing or grounding (connecting the human body to the earth) has demonstrated anti-inflammatory effects in human body and improvements in the immune response that both effects might assist in influenza treatment [4]. Diarrhoea associated with rotavirus is one of the major gastrointestinal problems faced by human infants. The protective effectiveness of probiotic feeding against naturally acquired diarrhoea is under investigation. Evidence suggests that specific probiotics may be antagonistic to enteric viruses and enhance immunity, and thus, provide a means of preventing or treating diarrheal diseases. In a clinical trial including twenty-nine pediatric patients who presented with acute rotaviral gastroenteritis. Six probiotic strains (*Bifidobacterium longum*, *B. lactis*, *Lactobacillus acidophilus*, *L. rhamnosus*, *L. plantarum,* and *Pediococcus pentosaceus*) were given to the patients twice daily for 1 week. The probiotics were found significantly shortened the duration of diarrhoea in these patients as compared with a placebo. The study revealed that the probiotics may be useful for the treatment of acute rotaviral gastroenteritis or as an alternative therapy without adverse effects [5]. Dengue fever is caused by the mosquito-borne dengue virus (serotypes 1-4) which is the most common arboviral infection of humans in tropical and subtropical regions of the world. Tong et al investigated the effect of herb known as *Gastrodia elata* on the multiplication cycle of dengue virus serotype 2 (DV2). The investigators concluded that the active ingredient of the herb (WSS45) exerted potent inhibitory effect on DV2 through interfering with the interaction between viruses and targeted cells [6]. Kiat et al. investigated the effect of Chinese

ginger or finger root on dengue 2 virus. Their study showed good competitive inhibitory activities towards dengue 2 virus NS3 protease [7]. Medical ozone revealed bactericidal, fungicidal, and virucidal activity. Some studies proved that ozone infused into donated blood samples can kill viruses into a higher extent of cases. Zaky et al. studied the effect of ozone therapy in patients with chronic hepatitis C. The investigators concluded that ozone therapy significantly improved the clinical symptoms associated with chronic hepatitis C and was associated with normalized ALT and AST levels among a significant number of patients. Ozone therapy also demonstrated disappearance of HCV RNA from the serum (negative PCR for HCV RNA) in 25%-45% of patients with chronic hepatitis C [8]. Traditional Korean herbs (known as KYH-1) have been recognised that exhibit potency against hepatitis B virus and hepatitis C virus infections. The antiviral activity of an aqueous extract of herbal formulation KYH-1 was tested in tissue culture systems for HBV and HCV. The researchers showed that KYH-1 exhibited potent antiviral activity against hepatitis viruses through inhibition HBV polymerase and suppressing viral replication [9].

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