Can We Prevent Influenza-like Illnesses by Gargling?

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SHORT COMMUNICATION

Our recent randomized controlled trial (1) proved that simple tap water gargling prevented common cold by 40% but gargling with povidone-iodine did not. We carried out a further analysis focusing on the influenza-like illnesses (ILI) using the same data set. The details of the study were described elsewhere (1).

Briefly, healthy Japanese volunteers of both sexes, aged 18-65 years were recruited for the study between December 2002 and January 2003. Participants were randomly assigned to the following three groups: water gargling, povidone-iodine gargling, and control. Subjects of the two gargling groups were instructed to gargle with approximately 20 mL of water or diluted 7%-povidone-iodine for about 15 sec three times consecutively and to repeat this treatment at least three times a day.

The control group members were instructed to continue their previous gargling habits. All subjects were requested to fill in the prescribed form (gargling diary) every day, which included the frequency of gargling and hand-washing and various influenza complaints according to the Jackson method (2). The primary endpoint was first occurrence of ILI, which was defined as both 1) developing a fever of 38.0°C or higher, and 2) worsening arthralgia in addition to some respiratory symptoms. The incidence rate of the first ILI and the rate ratio with its 95% confidence interval (CI) were calculated. Multivariate analysis was performed using Cox’s proportional hazard model. All analyses were performed on an intention-to-treat basis.

A total of 387 subjects participated in the study at 18 sites across Japan and were randomized. Fourteen subjects (15.0% by the Kaplan-Meier estimation) in the control group, 11 (11.3%) in the water-gargling group and 10 (9.2%) in the povidone-iodine gargling group became infected with ILI by day 60. The multivariate hazard ratios were 0.72 (95% CI: 0.30, 1.61) for water gargling and 0.75 (95% CI: 0.32, 1.72) for povidone-iodine gargling.

Although little is known about gargling in western countries, it is a very common hygienic practice in Japan. Unfortunately, evidence about the prevention of respiratory tract infections is scarce. A non-randomized study (3) suggested that gargling with diluted povidone-iodine reduces the incidence of ILI or the common cold and the ensuing absenteeism from schools or work places.

We could not demonstrate significant preventive effects of gargling against ILIs. Different from the study on the prevention of the common cold, the incidence of ILIs among both gargling subject groups was quite similar, and we found no superiority of water gargling over povidone-iodine gargling in preventing ILIs. As shown by Akaike et al (4), house dust mite protease increases infectivity of influenza virus by 100 times. This may be the key factor to the prevention of respiratory infections by gargling. Because both influenza and the common cold have the primary mode of droplet transmission, gargling is deemed to bring about favourable effects through removal of oral/pharyngeal protease which helps viral replication. However, the potential airborne transmission of influenza (5) might attenuate the preventive effects by gargling.

Here, the lack of effectiveness of gargling might be merely due to the low incidence of ILIs; a further study of a larger sample is warranted to verify the effectiveness of gargling to prevent influenza in daily healthcare.

References

5. Bridges CB, Kuehnert MJ, Hall CB. Transmission of influenza:

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