

CLINICAL STUDY

Petroleum jelly and COVID-19 prevention

YAGHMOURI Pedram¹, ABDOLAHI Alina¹, SEDIGHIANI Fawzia²*Kurdistan University of Medical Sciences, Sanandaj, Iran. pyaghmouri@yahoo.com***ABSTRACT**

Since the ongoing pandemic of COVID-19, caused by SARS-CoV-2, has had a significant impact on public health and, also the clinical benefits of the medications are so limited, preventive measures may be able to help control its spread. Because the petroleum jelly compound could alter the physicochemical properties that affect adhesion, we investigated the preventive role of Petroleum jelly on covid-19 infection. Forty people with no sign and no history of covid-19 infection, were included in this study. They use petroleum jelly (Vaseline) nasally twice a day for about two months. After that time, participants tested by RT-qPCR to determine any infection with SARS-CoV-2 virus. There was a significant difference in terms of RT-qPCR results between the intervention and control groups. Petroleum jelly may be effective in preventing covid-19 infection (Tab. 2, Fig. 1, Ref. 13). Text in PDF www.elis.sk

KEY WORDS: COVID-19, pandemic, reverse transcriptase polymerase chain reaction, public health.

Introduction

The COVID-19 pandemic is a worldwide threat to health. The WHO characterized the COVID-19 outbreak as a public health emergency of international concern in 2020 and it was classified as a pandemic the following year. The pandemic, which is caused by the SARS-CoV-2 virus, has had a significant influence on worldwide public health and socioeconomic stability, necessitating the development of effective vaccinations and therapies(1). It has been shown viruses like influenza H1N1, human coronaviruses, herpesviruses, hepatitis C tend to stick to lipophilic surface (2). SARS-CoV-2 can penetrate the mucosal membranes of the nose, eyes, and mouth and spread to important organs such the lungs (3). Numerous studies have already been published on the adhesion of viruses to different surfaces, such as organic matter (4), soil (5), membrane filters, sand (6), polymers (e.g. polyvinylidene fluoride and anion exchange resins) (7, 8), and polyelectrolyte-coated surfaces (9).

Petroleum gel, also known as Vaseline, is a type of mineral oil that is a combination of paraffin, microcrystalline wax, and minerals. It is mostly used as moisturizer in the prevention of skin infections after ambulatory surgeries and as a maintenance therapy of atopic dermatitis (AD). It can also protect against wounds and skin burns(10). Bacteriophage adsorption to Vaseline was at least one order of magnitude lower than to the skin (11).

COVID-19 vaccinations are unable to fully immunize against newly emerging variants and there is no effective antiviral treat-

ment approved by the FDA; thus, preventive measures may be able to help control its spread. Because the nasal epithelium is one of the initial sites of infection with SARS-CoV-2, researchers examined if the use of petroleum jelly (Vaseline) nasally could help avert infection in volunteers.

Material and methods

In this study, 40 volunteers were recruited from employees of Pasteur Laboratory, Sepah Bank, and Tamin Ejemaei Clinic in Sanandaj, Iran. The volunteers were in regular direct contact with clients and patients; they were more likely to interact with someone infected with COVID-19. The participants in this observational case-control study were matched in two groups by age and gender.

The volunteers were healthy, as determined by their medical histories and physical examinations, and did not use any medications. They also had no history of COVID-19 infection, which was confirmed by antibody testing (IgM, IgG). They used petroleum twice daily for two months nasally, from February to April 2021 (the fourth peak of the pandemic in Iran). The control group consisted of 20 healthy volunteers having no history of COVID-19 infection who had negative antibody tests (IgM, IgG). The protocol of this study was approved by the Regional Committee of Ethics of the Kurdistan University of Medical Sciences. The informed agreement was obtained from all participants.

Results and discussion

There were 40 volunteers (66.7 %) in the intervention group and 20 volunteers (33.3 %) in the control group. Of these, 27 were female (45 %) and 33 were male (55 %). The average age of volunteers was 38.52 years with a standard deviation of 10.1 years. The

¹Kurdistan University of Medical Sciences, Sanandaj, Iran, and ²Kurdistan University of Medical Sciences, Sanandaj, Iran

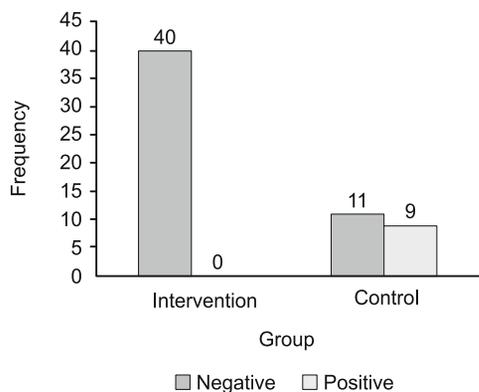
Address for correspondence: Pedram YAGHMOURI, Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran.

Tab. 1. Frequency distribution of studied variables.

		Frequency	Percent
Group	Intervention	40	66.7
	control	20	33.3
Gender	Female	27	45
	Male	33	55
IgM	Negative	60	100
	Positive	0	0
IgG	Negative	60	100
	Positive	0	0
RT-qPCR	Negative	51	85
	Positive	9	15

Tab. 2. Comparison of sex and covid 19 infection in two groups.

		Group		p
		Intervention	Control	
Gender	Female	16 40.0 %	11 55.0 %	0.409
	Male	24 60.0 %	9 45.0 %	
RT-qPCR	Negative	40 100.0 %	11 55.0 %	0.0001
	Positive	0 0.0 %	9 45.0 %	

**Fig. 1. Vaseline was able to prevent the disease to a large extent. RT-qPCR results in two groups.**

maximum and minimum age were 56 and 17 years, respectively. The IgM and IgG results were negative for all volunteers (Tab. 1).

There was no significant difference in gender between the intervention and control groups as the individuals in the two groups were matched. After the intervention period was completed, the RT-qPCR results for all subjects in the intervention group were negative; however, in the control group, 45 % had contracted COVID-19 and reported positive RT-qPCR results (Tab. 2). There was a significant difference in RT-qPCR results between the intervention and control groups. The results of the Chi-square test for the RT-qPCR results indicated no significant difference between men and women in terms of contraction of COVID-19. More females than males tested positive, but this difference was not statistically significant (Fig. 1). The evidence indicates a preventive role of

the application of petroleum jelly twice daily versus placebo as a potential coronavirus preventative among adults working in medical centers, banks, and laboratories in Sanandaj, Iran.

Previous research has shown that Vaseline acts as a barrier to adhesion to human skin (11–13). It has also been reported Vaseline to be highly antimicrobial and modulates barriers to epidermal differentiation (10) and reduces bacteriophage adsorption to the skin (11).

The results of this study indicate that the use of petroleum jelly nasally could lessen the rate of COVID-19 infection. This could relate to the petroleum jelly compound that could alter the physicochemical properties affecting adhesion. It is recommended that to confirm these results, a larger sample size and longer duration large-scale follow-up investigation is implemented.

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