

Hand Wash: Preventive Measure for Covid19

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Abstract

In recent times, a novel type of viral infection has emerged in Wuhan City of China, with new genomic sequenced CoVs, which called as novel CoV strain (2019-nCoV) or severe acute respiratory syndrome CoV-2 (SARS-CoV-2).

It is imperative to vigilance the readers about COVID-19 virus which transmitted through direct contact with respiratory droplets which produces through coughing / sneezing of an infected person or touching contaminated surfaces where viruses can several for several days. Simple personal hygiene procedures can protect humans from COVID 19 infections. Promoting fine hand hygiene by use of soap or alcohol containing sanitizer are most basic, cheapest and powerful tools to reduce risk of spread of such SARS (severe acute respiratory syndrome) and MERS (Middle East respiratory syndrome) a global pandemic. The present manuscript covers numerous personal hygiene practices, spreading pathway of COVID19 infection, classification of COVID 19 virus, details regarding hand wash techniques. We here summarize structural details of Corona Virus like envelop composition, genetic composition and numerous classification aspects of virus. Also basics of mechanism of soap for destruction of virus and importance / effectiveness of soap against COVID 19 virus. In this review, we address important points regarding hand-wash techniques and necessary care for hand-wash. Parameters regarding selection of effective sanitizer.

Keywords: Personal hygiene practices; COVID-19 virus; SARS (severe acute respiratory syndrome) and MERS (Middle East respiratory syndrome), Respiratory droplets; Classification of COVID 19 virus; Hand wash technique; Soap; Sanitizer

Introduction

The human body skin or other body cavities can provide wide entry platform for disease-causing germs like bacteria, fungi, viruses and many more which further replicate, cause serious infection. In the past decades, numerous new diseases have emerged in different geographical regions, like Zika, Ebola, Nipah, and corona viruses (CoVs). Since December 2019, a novel type of viral infection has emerged in Hunan seafood market, Wuhan City of China, with new genomic sequenced CoVs, which called as novel CoV strain (2019-nCoV) or severe acute respiratory syndrome CoV-2 (SARS-CoV-2), the virus outbreak has been affirmed a public health emergency of International concern by World Health Organization (WHO) as officially a pandemic situation. Since knowledge about COVID-19 virus is hastily evolving, readers are urged to modernize themselves recurrently for recent development and preventive measures [1].

Maintaining excellent hygiene is the foremost step to living a healthy life. These infections can be avoided by various good hygienic practices which denoted in bellow (Figure 1).

The main objective of study, to project about healthy hygienic practices and their implementation parameters along with various effective hand washing techniques. Manuscripts also focus on various aspects like details regarding structure of COVID-19 virus, classification of COVID-19 virus, spreading phenomenon, preventive measure.

One significant mode to reduce the risk of infections is good hand hygiene. Clean hands can stop spread of germs from one person to another. Washing hands with soap and water or using alcohol-based hand rub kills viruses like SARS-CoV-2, the Corona Virus and which acts as effective shield against COVID 19 infection.

Numerous spreading phenomenons for Corona Virus (COVID-19)

COVID-19 is assumed to initiated from an animal host (Zoonotic

origin) such as bats followed by human-to-human transmission.

Corona virus is a respiratory illness; which mostly spread through virus-laden droplets from coughs and sneezes.

Respiratory viruses like corona virus disease (COVID-19) spread when mucus /droplets containing the virus expose to eyes, nose or throat and cause infection.

COVID-19 virus consist of envelop which made up of lipid bilayer, which shape like a tadpole consist of polar or hydrophilic head and non-polar tail/ hydrophobic tail. Describe structure two layer piled to formed micelle like structure as shown in (Figure 2) as hydrophilic head/ polar head par of virus is very sticky which may be vital reason for spread of infection from contaminated area.

COVID-19 is spread through direct close contact with a person who is infected.

Virus can spread between people close contact with each other (about 6 feet).

Virus can adhere on smooth surfaces such as tables, phones.

Sars-CoV retain viable for five days at 22-25OC and relative humidity at 40-50 % .

This virus specifically attack on specific body parts like lungs, liver

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Figure 1: Healthy practices for personal hygiene. [2- 5]

and small intestines because of Furin enzyme present Host. The sugars on the spike act as camouflage [6].

RNA recombination in corona viruses is typically responsible for the evolution and emergence of novel coronaviruses and frequency of recombination is higher in the S gene which codes for viral spike (S) glycoprotein [7-9].

Washing hands with soap why protect against Corona Virus (COVID-19)

Washing hands with warm water and soap can preventing the spread of infectious diseases due to destruction of virus [5] ,[10-12].

COVID-19, are encased in a lipid envelope basically, a layer of fat.

Soap/ detergent molecule also have similar tadpole structure as virus (explained in numerous spreading phenomenons for Corona Virus); therefore lipid bilayer molecule attracted towards soap molecules which responsible for breaking of virus shell/ envelop which made up of bilayer.

Soap can break that fat apart and make the virus unable to infect you as shown in below (Figure 2).

Corona viruses are Spherical or pleomorphic enveloped, non-segmented, single-stranded positive-sense RNA viruses that possess large viral RNA genomes, capsid and envelop with club-shaped glycoprotein projections [12-14].

Classification of Corona viruses / Toro viruses as follows

Hand wash with soap is only effective way to reduce the spread of COVID 19 virus, which also able to destruct the virus particle as explain earlier in manuscript [16]. In bellow (Figure 3-5).

Important points related to hand wash technique:

Using clean, running water is important.

After washing hand with soap, use a new tissue to hold the faucet and turn off the water tap.

Do not use common towels or do not touch door handles in the bathroom, toilet flush handles as they can re-contaminate your hands.

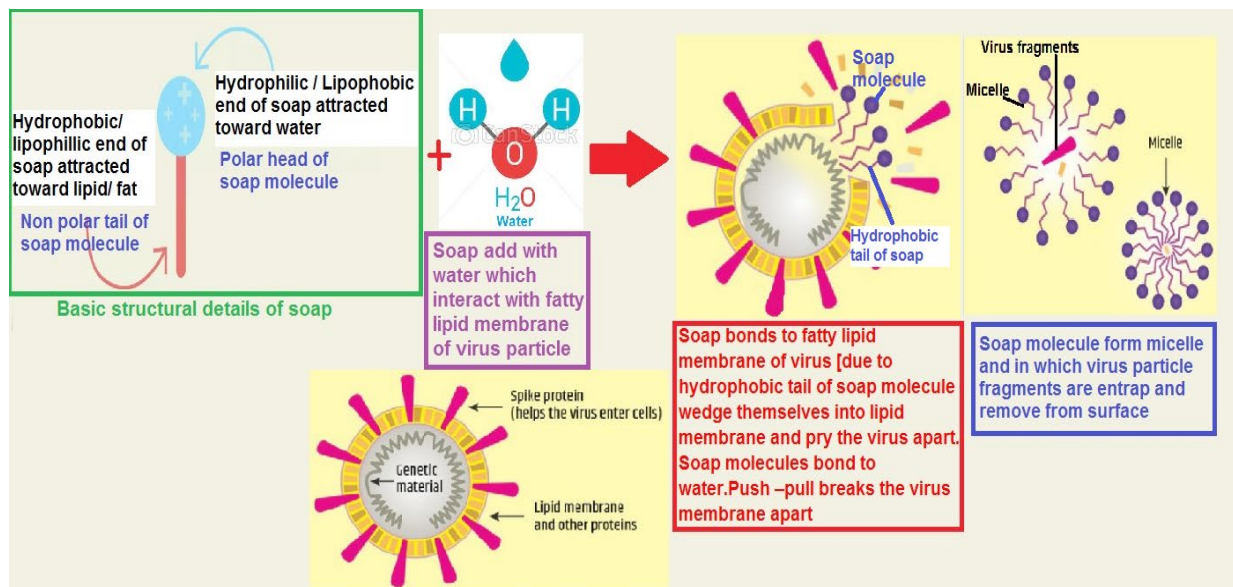


Figure 2: How soap destroy Corona Virus particles. [10,11].

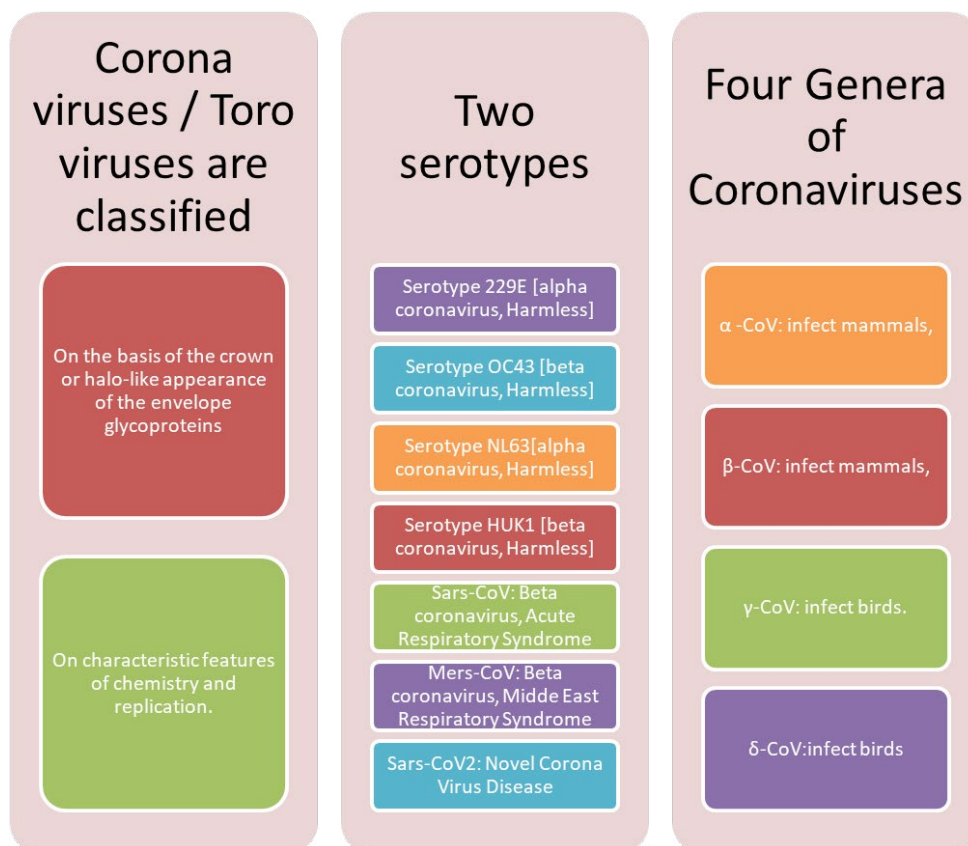


Figure 3: Numerous classification for Corona Virus. [15].

Frequent washing of hands reduce the risk of infection.

Use of hand sanitizer/hand-rub [60% ethanol or 70% iso-propanol] [17].

Conclusion

COVID-19 virus chiefly spreads through the respiratory droplet and contact transmission through contaminated surface by infected

person. Thus, hands can spread virus to other surfaces like mouth, nose or eyes by touching. So hand Hygiene is one of the most effectual practices that help to diminish the spread of virus and prevent COVID-19 virus infections.

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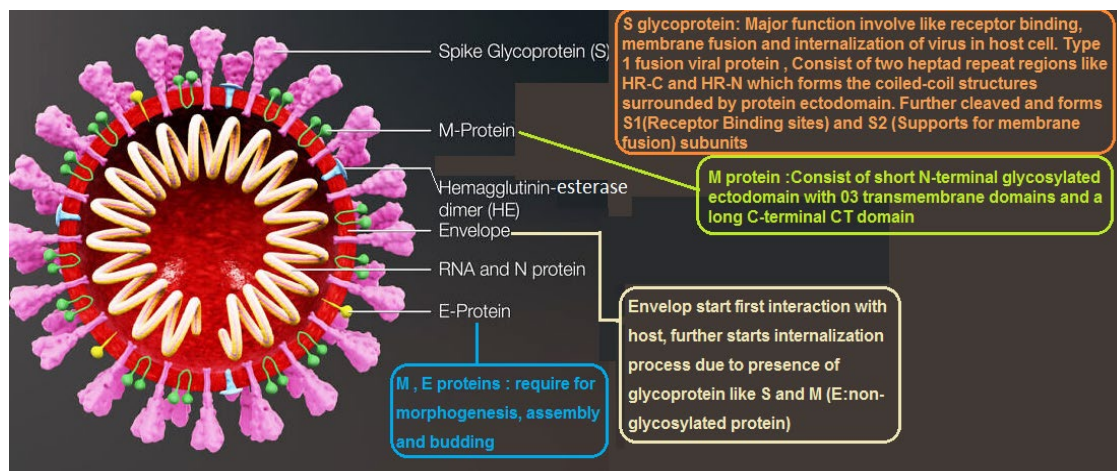


Figure 4: Structure of Corona Virus. [12,13,14].



Figure 5: Details of hand washing techniques.

Contribution statement

Priyatama V. Powar conceptualized and gathered the data with regard to this work. Priyatama V. Powar and Devendra D. Shirode analyzed these data and necessary inputs were given towards the designing of the review manuscript. Devendra D. Shirode scrutinized and arrange the data regarding basic structural details regarding COVID virus particle. All authors discussed and contributed to the final manuscript.

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