

## THE EFFECT OF SODIUM HYDROXIDE SUPPLEMENT ON INTRACELLULAR PH; A NEW APPROACH MAY SHED LIGHT ON DEACTIVATING COVID-19 – REVIEW

Hassan Sadek\*<sup>1</sup> and Jesse Hernandez<sup>2</sup>

<sup>1</sup>Senior Consultant/Lecturer Oman College of Health Sciences – Oman.

<sup>2</sup>Radiation Safety Officer / Health Physics – Iso-TEX Diagnostics Radiopharmaceutical - Friendswood-Texas- USA.

Article Received on  
04 March 2020,

Revised on 24 March 2020,  
Accepted on 13 April 2020,

DOI: 10.20959/wjpr20205-17366

### \*Corresponding Author

**Dr. Hassan Sadek**

Senior Consultant/Lecturer

Oman College of Health

Sciences – Oman.

### ABSTRACT

**Background:** In December 2019, a new coronavirus was discovered in Wuhan, China, which is officially named COVID-19. Within two months of the discovery of the first patient, it has now spread across China and many areas globally. COVID-19 appears to follow other patterns of SARS. Although the fatality rate is estimated to be low, the number of deaths has already exceeded that of SARS. COVID-19 is a major pandemic that will be with us for some time. For most patients, COVID-19 begins and ends in their lungs, because like the flu, coronaviruses are respiratory diseases. pH and temperature constitute two important and conveniently controlled factors that will facilitate

further molecular studies on human coronaviruses. There is no specific antiviral treatment for COVID-19. It will act like other infectious diseases and slowdown in the warmer summer months. The scenarios in this paper demonstrate that increase intracellular pH (alkalinity within the cell) has been shown to decrease the infectivity of pH-dependent viruses. There are several ongoing clinical trials that include both western and traditional medicines. Vitamin C has been reported in clinical trials to successfully help treat coronavirus. Understanding the role of pH balance in viral infections may provide preventive and therapeutic breakthroughs for dealing with epidemics including the recent outbreak of COVID-19. **Methods:** PubMed and Embase were searched up to March 22, 2020, for prospective observational studies that assessed the relationship of pH and COVID-19 activity. **Results:** The research study reviews the researches on the COVID-19 which concludes that there is no definite vaccination for the virus however it can be prevented or treated through immune-boosting techniques such as

intake of Sodium Hydroxide supplements. **Conclusion:** Coronavirus is sensitive to pH. The MHV-A59 strain of coronavirus is quite stable at pH 6.0 (acidic) but becomes rapidly and irreversibly inactivated by brief treatment at pH 8.0. Alkaline supplements create no place for viruses and bacteria to reproduce and boost our immune system.

## INTRODUCTION

The outbreak of the viral disease has become a matter of concern on the global level. Stats have been increased on the consistent level while no absolute solution for the outbreak has been discovered. Major parts of the world are facing lockdown situations while it is affecting the world economically as well. Perhaps the rate of fatality is not higher than other viruses, the pandemic nature of the virus has created significant chaos all over the world. (Tung, 2020) The outbreak of such a virus has immense effects not only in terms of the fluctuation in the mortality and the morbidity rate but also on other factors such as the economy. Amidst a global pandemic, the first approach towards controlling the situation is to declare a lockdown that helps contain the outbreak, however, it causes irreversible damage to the worldwide economy. (Cohen & Kupferschmidt, 2020). The lockdown includes the shutting down of all industries and supply chains, the consequences of which are evident in the form of the dropping production of the country. Developed nations like China and the United States of America are a source of product supply for number of other countries and due to the lockdown, the condition of the economy of both the developed and the underdeveloped countries is jeopardized. The transport also shuts down as a result of the viral outbreak which further contributes towards the deteriorating economy because of the limited transportation of goods across and within the countries (Bank et al., 2020). The potential economic damage that is likely to be caused by the - COVID 19 is to a great extent and hence the need to contain the outbreak in every possible way is vital. If unfortunately, the government all over the world fails to take measures regarding the pandemic the economy will collapse leading to a rise in poverty and chaos.

Ever since the outbreak, researches have been looking into various approaches to prevent chaotic conditions of the country. The biology of the virus needs to be understood before dwelling into the possibilities for prevention. One of the most concerning properties of the virus is that it spreads at a relatively higher rate through person to person contact. It affects the respiratory system inside the human body making it extremely difficult to breathe (Bernheim et al., 2020) There is currently no vaccine or anti-viral treatment for COVID-19 as

of now. The virus-like several other antibodies tend to fluctuate the extracellular PH of the cell as a side effect. This paper tends to look into the effect of sodium hydroxide supplements on the PH level of cells a preventive measure (Wu et al., 2019; Kalynych et al., 2017; Batishchev et al., 2017) The PH level of a cell can be understood as the level of acidity present inside the cell which is a common factor that plays a role in the proximity of the virus to survive inside the cell. The role played by Sodium hydroxide supplements over here can be understood through the idea that if alkaline supplements are provided, the virus will no longer be able to survive inside the host cell (Zwart et al., 2020). Present literature on the phenomenon has been reviewed for conducting this research and the relevant findings have been put forward. The previous use of sodium hydroxide supplements to prevent infection from any virus has also been discussed in detail for a better understanding of its effects on the survival rate of the virus inside a host cell.

In conclusion, this research is based on the idea that when a virus or an antibody enters a host cell its survival inside if the cell is dependent on the conditions provided by the host cell. The usage of alkaline supplements such as sodium hydroxide supplements can reduce the probability of the virus showing symptoms inside the human body (Falco et al., 2019). To further look into the effectivity and implication of the concept, several types of research have been reviewed so that the findings extracted from the literature can be discussed and evaluated. The methodology for the research can be observed as follows.

## METHODOLOGY

This research has been conducted in the form of a review where the present and current literature relating to the COVID-19 virus and its outbreak has been looked into. The keywords that were used to select relevant articles can be observed as; sodium hydroxide supplements, COVID-19, Deactivate COVID-19, pH level. The authenticity for encouraging the use of hydroxide supplements to contain the COVID-19 virus outbreak can be supported by looking into the previously conducted observations. PubMed and Embase were searched up to March 22, 2020, for finding evidence for the effectivity of the NaOH supplements.

## LITERATURE REVIEW

Previously conducted observations on the relation of pH and prevalence of antibodies have been carried out in laboratory settings under controlled conditions on the Rous sarcoma virus in citrate and borate buffers. This research provides a foundation for the effect of pH on the viability of a viral antibody (Kathyayani et al., 2019). The results obtained from the above-

mentioned research are such that the growth of the virus showed an increase in buffers that high levels of acidity which proves that the viral growth has a proportional relationship with pH levels inside a host cell. Furthermore, the research supports the dependency of virus production on the levels of pH inside the host cell.

The previous research conducted on alkaline treatment on virus studies the relation between the pH levels inside a cell and its effect on the survival of virus (Nishio et al., 2016) Here the experiment was carried out by following the methodology of growing the virus inside an animal host cell under controlled conditions and further making observations on the effect of alkaline treatment on the virus. For this research, a protease catalyst was used to check the solubility of the virus and the disruption of the virus (Attri et al., 2019). The results of the research lead to the conclusion that protease enhances virus disruption. The disruption of a virus is not an authentic solution to a global epidemic; however, it contributes towards the preventive measure that helps in containing an uncontrollable viral outbreak.

Once the virus enters the human body it causes various symptoms, depending on the stage at which the virus has spread. (Pullano et al., 2020) There are two possibilities once the body gets infected by COVID-19; either the host body shows various stages of symptoms or it remains asymptomatic which refers to no expression of the expected symptoms. If the body shows symptoms it will go through different stages of the infection such as general flu symptoms or in severe cases the virus might lead to a very serious condition of pneumonia. According to the research conducted by it (Muth et al., 2018) was found that most COVID-19 patients show an increase in the following symptoms; lymphopenia and abnormalities of neutrophils, platelets, aspartate aminotransferase (AST), aspartate aminotransferase (AST, and inflammatory biomarkers. The results of this study also put forward an interesting finding in terms of the refractoriness of the disease which is such that the symptoms showed less responsiveness to treatment in males in comparison with females. This information may prove to be useful in terms of future approaches to come up with preventive measures.

One more study looks into the combined effect of pH levels and temperature on the human coronavirus. (Hunnam et al., 2018) The findings from this research can be observed as follows; although there were no absolute findings that could be extracted from the experiment, however, it can be said that the two factors being temperature and pH levels play a significant part in future approaches towards the human coronavirus.

Furthermore, researches suggest that traditional Chinese medicine has been effective in the treatment of different kinds of deadly viruses. This medication has shown results against many epidemics and has many types of research have faith in the usage of TCM through-out history. Going back to the former epidemic likely known as SARSs that occurred back in 2003, this medication was utilized to control the widespread of the virus. When the COVID-19 spread initiated the several rescue teams were prepared for participating in the rescue project where several suggestions included the use of TCMA (Chen, 2017). This medication however also does not directly provide a cure for the COVID-19 symptoms but helps in reducing the recovery time for the symptoms. According to an experiment by It was found that duration was observed to reduce by 48 hours by the use of TCM with further improvements observed by the doctors that were assessing the participants of the experiment. Traditional Chinese medicine is used to reduce the symptoms whereas alkaline supplements are an approach towards preventing the onset of the symptoms before the virus gets a chance to grow.

Another research that supports the use of alkaline supplements suggests that if certain conditions were met that preserve the growth of the antibody then the symptoms could be controlled as well (Schmidt et al., 2016). This approach tends to achieve above normal resistance to anti-bodies However, because of a lack of suitable technics, data for inactivations approaching zero infectivity were not experimentally obtainable. Thus, the time required for total inactivation of the virus by formaldehyde is not necessarily determined.

In conclusion, it can be said that there have been no possible cures for the human coronavirus but there have been approaches to control the symptoms and the onset of the symptoms after the COVID-19 has entered a host cell. The above-reviewed literature helps in finding new opportunities for controlling the current epidemic and other future epidemics.

## RESULTS

According to the data analysis and the facts related to the COVID-19, the SARS has a major role in the efficacy of the virus whereas the definite effect of proteins and other significant factors is not defined. According to this research review the in current SARS COVID, pH dependencies play a significant role from the viral entry perspective. The S glycoprotein is further considered to have a major influence on pH-dependent endocytosis. According to the findings of this research, Coronavirus is considered to be sensitive to pH. The MHV-A59 strain of coronavirus is quite stable at pH 6.0 (acidic) but becomes rapidly and irreversibly

inactivated by brief treatment at pH 8.0. Alkaline supplements create no place for viruses and bacteria to reproduce and boost our immune system.

According to the review of other literature, the effects of the pH can be useful by numbers of mean on the present pandemic COVID-19 while it can help to enhance the rate of prevention of the virus on a global level. According to the study, the balance of the alkaline pH environment helps to make better strategies for the treatment while has the tendency to make the healing process of SARS and the other viral infections that affects the respiratory system.

Since this pandemic has similarities to pneumonia, the studies also suggest that the treatments, as well as the triggering factors of the pneumonia, also effects the current situation.

As for Sodium Hydroxide Supplement, commonly known as caustic soda, it has a lot of applications in the world of medicines and supplements. Some of the regions do not consider it a safe ingredient whereas it is often used for tissue building purposes. Moreover, the high base nature and decomposition of the protein of the supplements allow the chemicals to burn. Since the formula has been utilized for many purposes in different industries, the use has become common while its effectiveness is often witnessed in the face of different applications.

According to this review, the use of sodium hydroxide against the viruses has been influential and provably effective while according to the characteristics and findings related to COVID-19, it can help to prevent the worse outbreak situation.

The data and article that were selected to compose this review research article include:

**Table 1: Review articles on COVID-19.**

Title	Authors	Publication date
<b>Traditional Chinese medicine for COVID-19 treatment</b>	Jun-lingRenAi-HuaZhangXi-JunWang	4 March 2020
<b>The Global Macroeconomic Impacts of COVID-19: Seven Scenarios</b>	Warwick McKibbin and Roshen Fernando	2 March 2020
<b>Clinical characteristics of refractory COVID-19 pneumonia in Wuhan, China</b>	Pingzheng Mo, Yuanyuan Xing, Yu Xiao, Liping Deng1, Qiu Zhao, Hongling Wang, Yong Xiong, Zhenshun Cheng, Shicheng Gao, Ke Liang, Mingqi Luo,	20 March 2020

	Tielong Chen, Shihui Song, Zhiyong Ma, Xiaoping Chen, Ruiying Zheng, Qian Cao, Fan Wang, Yongxi Zhang	
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Whereas in order to find the relativity to the Sodium Hydroxide Supplement on Intracellular pH, the previous researches done on Sodium Hydroxide was analyzed.

## DISCUSSION

According to the research analysis, there is no particular anti-viral treatment discovered of the current pandemic COVID-19 whereas, the best way to stop this is to take precautionary actions. It includes many things such as enhanced hygiene routine, whereas it also depends upon the strength of the immune system. Since Sodium Hydroxide supplements have been used for the relevant purposes for a long time, according to the research studies, it can help to eliminate the risk factor on some level. Perhaps, these supplements have been used in multiple regions for different purposes while some regions do not consider it safe for intake, their efficacy is scientifically proven. The review includes the recent researches that were conducted about the current situation of the pandemic whereas, it includes the fact that there is no definite vaccination available, but the prevention of the virus is the most optimizing solution.

According to the properties of Sodium Hydroxide supplements discussed in this research article, it is considerably useful in the current circumstances while there can be advancements in research in terms of efficacy. Since these supplements boost the immune as well as does not allow the viruses to reproduce and keep effecting, it is supposedly effective for the prevention of the outbreak. The treatment at pH 8.0 is considered to be effective for the treatment and prevention of the reproduction of the bacteria.

## CONCLUSION

Concisely, the use of sodium hydroxide at the level of pH 8.0 has a significant probability to prevent the virus to spread while it can be used to treat the patients accordingly. The research includes the review of conducted researches on COVID-19 and the facts and figures related to the sodium hydroxide supplements since it helps to prevent the virus from outbreaks on a significant level. This research can further be enhanced with an experimental approach while it can help to prevent the worse scenarios.



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