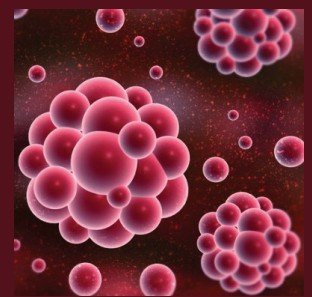


RAS MICROBIOLOGY AND INFECTIOUS DISEASES

Research Article: Application of Negative Ions to Inactivate COVID-19 Coronaviruses and Variants



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Abstract:

The COVID-19 pandemic has taken an enormous toll of morbidity and mortality globally. After attempts with drug therapy failed, the implementation of extensive vaccination programs have been able to mitigate but not completely eliminate the pandemic threat. A major drawback that has prevented progress in combating the toll of infections, hospitalizations and deaths has been the emergence of mutations. In the present report we propose a new approach for the prevention of COVID-19 and its variants.

Key words: COVID-19, Coronaviruses, Negative ions, Spike proteins

Introduction

In the twilight stages of the pandemic, it seems appropriate to revisit the measures that didn't work, those that did and those that were never put in place. The early clinical trials of the drugs, Hydroxychloroquine and Ivermectin were without efficacy and had serious side effects [1, 2]. In regard to the vaccine programs that were eventually implemented, full vaccination against infection in the general population aged ≥ 16 years, the elderly and healthcare workers was 86.1%, 83.8%, and 95.3% effective, respectively [3]. On the other hand, some non-drug based or other non-invasive approaches for coronavirus prevention and treatment have not been attempted [4]. The lessons learned from the past interventions can serve to effectively prevent the catastrophic upheaval in the society and particularly the tragic morbidity and mortality of millions across the world and aid in mitigating the long term effects of COVID-19 infections.

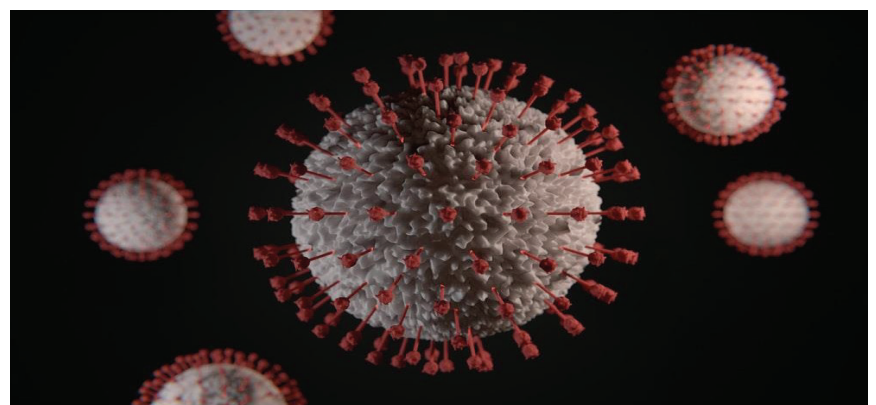


Figure 1. A generic image of a coronavirus showing the characteristic spikes that cover the cell body.

Negative Ion Therapy

The health benefits of negative ions have been known for more than a hundred years, yet the application to specific medical problems has been elusive. It is particularly in regard to coronavirus diseases that bring negative ion therapy to the forefront. We hypothesize that the positively charged proteins at the ends of the spike can be inactivated and neutralized by the attachment of negative ions. It is well known that the viral spikes represent the modus operandi for virus attachment to body cells allowing injection of the virus's DNA.[5]. Subsequent control of the cell's genetic machinery results in producing more viruses to overwhelm organ function.

Zhang et al. [5] found that SARS-CoV-2 variants had increased positivity of spike proteins (S domain) which enhances binding affinity and immune invasion. Moreover, they postulated that targeting the positively charged spike proteins with heparin, a highly, negatively charged molecule, may interfere with virus infectivity.

A Potential Method for Coronavirus Prevention:

There have been many experimental and commercial approaches for the production and dissemination of negative air ions. The major drawback in the use of negative air ions is the rapid fall-off in their concentration as the distance from its source increases. For example, in a recent study using an apparatus for emitting negative ions/sec, the average concentration was 1541 at 1 foot from the source, whereas measured at 5 feet was 204 [6].

Several previous studies have focused on the efficacy of negative ions to inactivate coronaviruses [7, 8]. Recently Yu et al. [9] in their study of coronavirus spike proteins found that the SARS-CoV-2 spike protein had more positive charges than that of SARS-CoV. Further results showed that the variants had similar but higher positive charges than preexisting SARS-CoV-2

The Daily Regimen

From a daily hygienic standpoint, the following, individual 5 step program is a potential regimen for preventing and treating COVID-19 and its variants.

Step 1. We have measured the level of negative ions generated in a shower room (400 square feet) before, during and after a warm water shower lasting for 15 minutes. The background negative ion count prior to showering was 400-500 counts/sec. After the 15-minute shower the ion count showed >3 million counts/sec which is the maximum for this Ion counter. The negative ion count in the 400 square room began to progressively diminish after 10-15 minutes when the shower ended.

Step 2. After finishing with morning routines and proceeding to work, school or other daily activities, standard masks should be worn.

Step 3. When masks are removed during eating and drinking a negative ion generator as a necklace can serve as protection from coronaviruses. These necklaces are commercially available and release from 2-15 million negative ions/sec in the vicinity of the head of the wearer.



Figure 2. A commercial wearable necklace which emits more than 2 million negative ions/sec

Table 1. Ion Counts at Different Facial Levels for Wearables Emitting 2 million/counts/sec. in 12 Normal Volunteers

Location of ion count	Average negative ion counts/sec	Standard deviation	p-value
Chin	1300	952	0.003 Chin vs Nose
Nose	500	262	0.0007 Chin vs Head
Head	230	66	0.02 Nose vs Head

Step 4. Sitting in a Chair in a Constant Environment of Negative Air Ions

The average adult sits for as many as 10 hours a day taking into account the time spent sitting at home, work or school. A generic

chair is illustrated with two ion generators emitting a continuous stream of negative ions to produce a protective environment for the person sitting in the chair.

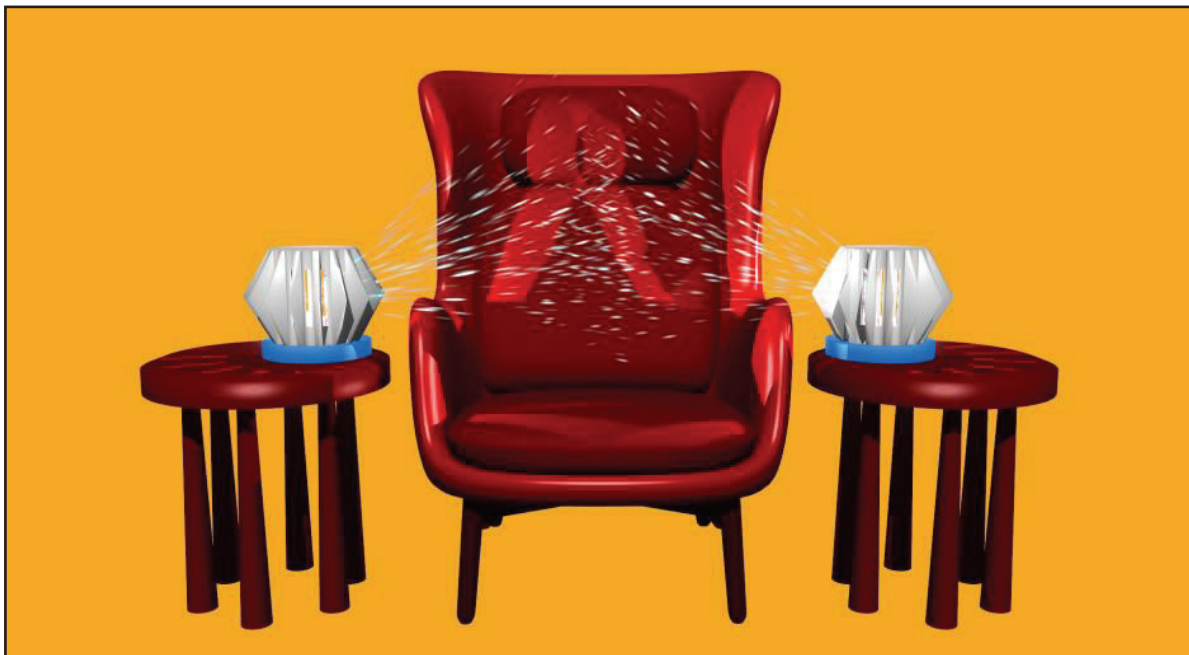


Figure 3. A generic chair is illustrated with two ion generators emitting a continuous stream of negative ions inducing a protective environment for the seated subject.

Step5. Sleeping in Bed in a Constant Environment of Negative Air Ions

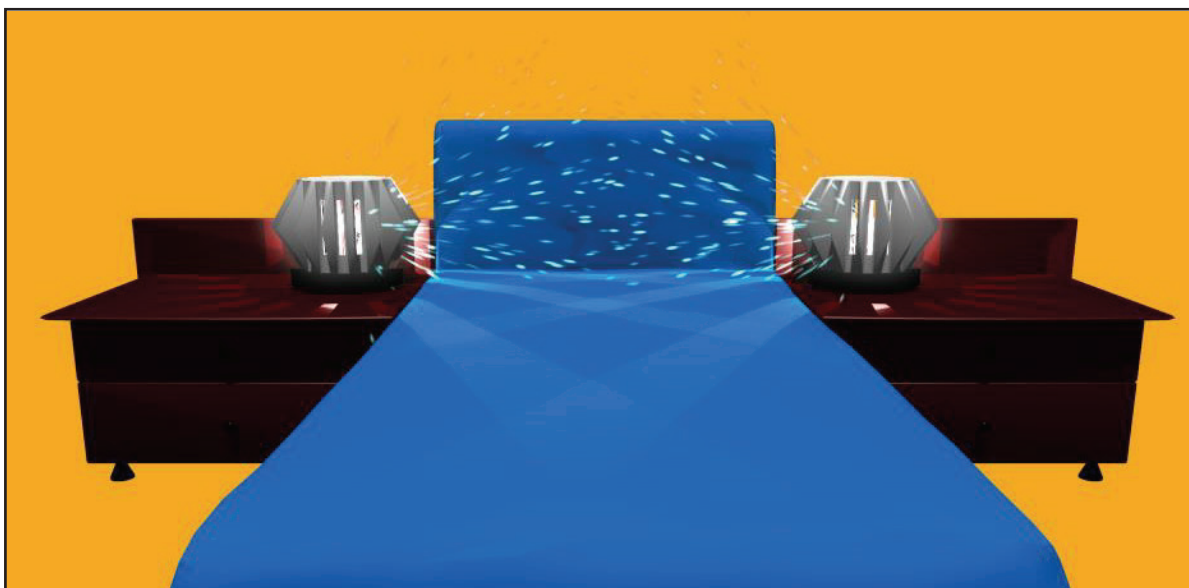


Figure 4. During the sleeping period, two negative ion generators on night stands on either side of the bed provide a constant stream of protective negative ions that can inactivate coronaviruses in the vicinity of the sleeping subject.

Conclusions

Vaccination programs and indications of herd immunity have significantly reduced the symptomology, hospitalizations and deaths caused by the coronavirus pandemic. However, the emergence of variants has remained one of the critical factors preventing elimination of the infection worldwide. Negative ion therapy is a potential new approach for combating COVID-19

and its variants. The spikes on the coronaviruses are the vehicle for infection by COVID-9 and its variants for entering body cells. We hypothesize that negative air ions attached to the positively charged spike proteins would prevent the virus from entering the body cells. A 5 step regimen is proposed which provides a protective negative ion environment from the beginning, warm water shower, to the end of the day, during sleep.

Conflict of Interest: None

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