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Research Article

A Nano Size COVID-19: Human Death and Asymptomatic Mechanism

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Abstract

COVID-19 has a spike protein and positive –sense RNA. Virus size is about 65 to 125 nm (diameter). The spike protein length is around 20 nm which is responsible for the infection. Based on the chemical concept, the metal ions are ready to form a complex with proteins. In this view, the spike protein can form a complex with various metal ions and the infection property of spike protein is prevented. Moreover, haemoglobin has Fe^{3+}/Fe^{2+}, the spike protein can also interact with the Fe^{3+}/Fe^{2+} and form a complex. The spike protein length is 20nm which may sufficient to insert inside the haemoglobin molecule and form a complex with Fe. Ultimately, the haemoglobin loses its oxygen transfer property with the result to human death. The other type of corona virus spike protein length may not sufficient to insert inside the haemoglobin. Hence the COVID-19 virus is a major cause for human death. In this view, to prevent the virus infection non-toxic metal ions can be used to form a complex with spike protein. These interactions make the virus death / asymptomatic and prevents further replication.

Keywords: Corona virus, Spike protein, Asymptomatic, Human death

Introduction

COVID-19 is emerged in Wuhan, China in December 2019. It has expanded to all nations worldwide, prompting the World Health Organization to proclaim this epidemic as a global pandemic on 11th March, 2020. COVID-19 typically manifested as sore throat, fever, shortness of breath and dry cough. This infection causes pulmonary failure and result in fatality. This poses major challenges for the prevention and treatment of viral infection. However, asymptomatic or mildly symptomatic cases have also been reported from different parts of the world. Corona virus size is about 65 to 125 nm (diameter). The structure of the virus is given in Figure 1, it consists of spike protein (S), envelope protein (E) and also membrane protein (M), hemaglutinin esterase dimer (HE) and nucleocapsid protein (N). The proposed mechanisms are targeting S and E protein.

Unexpectedly, the autopsy of COVID-19 patient reports revealed that clot occurred in tiny veins of the heart, liver, lungs and kidneys which is the ultimate reason for stroke and heart attack. Over 33% of acute COVID-19 patients have been observed to have severely high blood clotting [5]. We speculated how blood clotting arises for COVID-19 patients. This article proposed the formation of new complex in the blood vessels by the interaction of haemoglobin with spike protein which results in haemoglobin precipitation. Furthermore, we proposed mechanism of interaction of metal ions with spike and envelope protein of the virus in order to prevent infection, blood clotting and other health disorders (Figure 1).

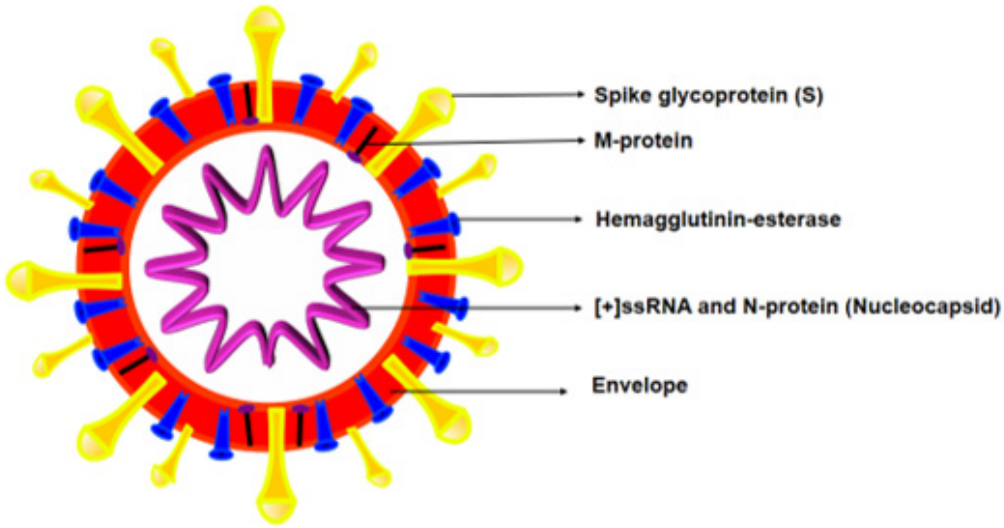

Figure 1: Structure of Corona Virus.

Metal ions Reaction with Virus

Virus outer coating is made by glycoprotein and lipoprotein (Li, 2016; Schoeman & Fielding, 2019). Based on chemical concept, many articles are reviewed and understand that the virus can be controlled by metal ions. The metal ions (M^{n+}) such as Na^{+}, K^{+}, Ca^{2+}, Mg^{2+}, Fe^{3+}, Fe^{2+}, Zn^{2+} and Se^{4+} etc are active to react with the virus protein. The proteins have functional group of amide or peptide. The peptide group has –C=O and –NH- functional groups with hydrocarbon backbone. The Mn+ ions readily react with –C=O and –NH or -NH_2 group and form complex [7,11]. The proteins are linked with other molecules such as carbohydrates and lipids. These molecules also have the functional group of OH and ester group. These groups also easily react with the Mn+ ions and form complex [2,3]. Then the RNA also has a tendency to react with M^{n+} ions to form complex [8,10]. The complex RNA is inactive. So, the COVID-19 can be deactivated by using metal ions.

Discussion with Proposed Mechanism

Asymptomatic, virus death and human death mechanisms are discussed by using non-toxic metal ions in the following section.

Human Death Mechanism

When the virus enters into the blood stream, the amine group present in spike protein makes an attempt to form a complex with iron present in the haemoglobin. The spike protein length is 20nm which may sufficient to insert inside the haemoglobin and form a complex with the Fe^{2+}/Fe^{3+}. So the haemoglobin loses its oxygen transport function. Since the complex is more stable and settle in the blood vessels as precipitate. This may affect the blood flow and results in vascular constriction which causes shortness of breathing. This leads to stroke, heart attack etc and human death will happen. However, the other type of corona virus are having the spike protein length may not sufficient to insert inside the haemoglobin. So, other than COVID-19 are not able to form a complex with haemoglobin Fe^{2+}/Fe^{3+}. Hence except COVID-19 the other corona virus are not able to kill the human being (Figure 2).

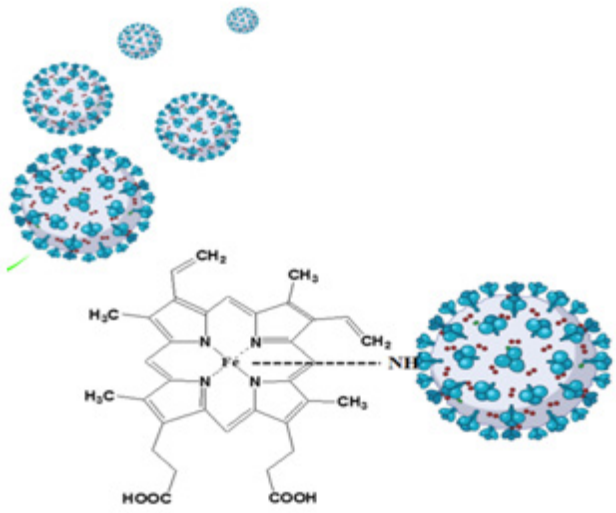

Figure 2: Proposed Human death mechanism - Interaction of corona virus with iron present in the haemoglobin.

Asymptomatic Mechanism

This mechanism can be classified as interlock mechanism, ion-exchange mechanism, wall thickening mechanism. All these mechanisms, virus becomes asymptomatic due to the metal ions reaction with virus body.

Virus Inter lock mechanism: NH group of the spike protein can readily react with metal ions (Figure 3) [1,4]. If the metal ion has more than one positive charge, it can react with two viruses at a time and result in interlocking of the two viruses (dimer). So, the virus activity is arrested. This type of virus will become Asymptomatic. It is evident through the zinc and calcium tablets are given to corona patients and corona patients relieved from the infection. M^{3+} and M^{4+} ions are also able to react in between three and four virus and form trimer and tetramer respectively. So metal ions have more than one charges can act as a powerful asymptomatic agent.

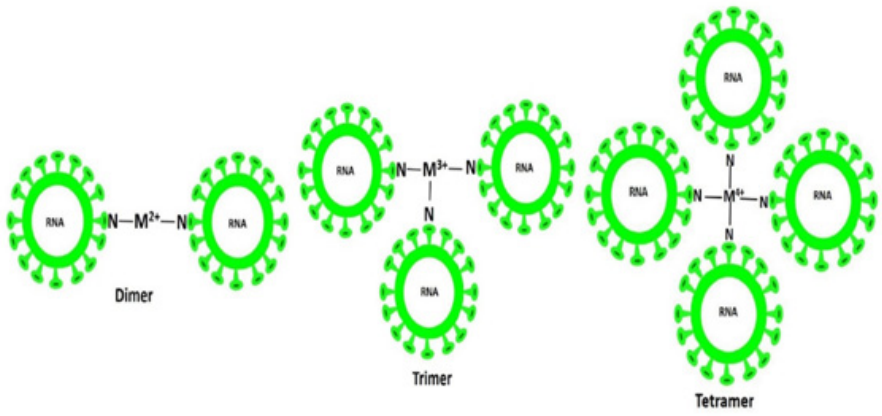

Figure 3: Proposed Asymptomatic - Virus Inter lock mechanism.

Ion exchange: Na^+ or K^+ ions have a property to exchange H^+ ion. The virus outer coat has many –COOH, –OH and -NH groups [4]. H^+ from –OH, -COOH and –NH or $–NH_2$ are exchangeable with Na^+ or K^+ ions (Figure 4) [1,4]. If H^+ is exchanged with Na^+ or K^+ ions the virus will lost its infection ability and becomes asymptomatic.

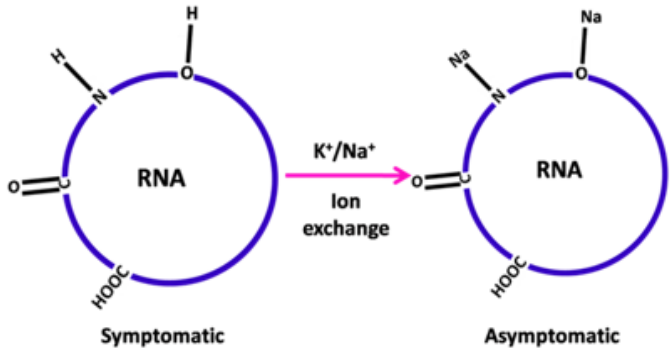

Figure 4: Proposed Asymptomatic mechanism - Ion exchange in envelope protein.

Wall Thickening Mechanism: Mn+ ion react with C=O and –NH group of envelope protein. This reaction produces positive charge on the carbon and nitrogen. To neutralize it, C–N bond cleavage takes place homolytically. Ultimately the metal ion will be inserted in the envelope protein. Metal ions like Ca^{2+}, Mg^{2+}, Fe^{2+} and Zn^{2+} can able to enlarge the virus size and become elongated circle is called wall thickening mechanism. Wall thickness increases due to the insertion of hard metal in the virus wall. The mechanism is shown in the Figure 5. Metal ions like M^{2+} are more responsible for this fact. Hence virus becomes asymptomatic, but living. Spread of this virus can be controlled.

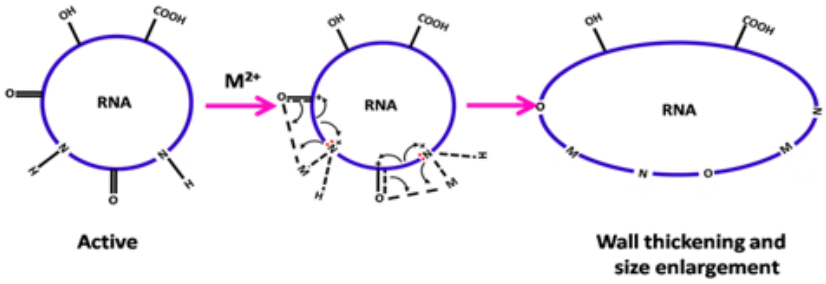

Figure 5: Proposed Asymptomatic mechanism - Wall thickening Mechanism

Virus Deactivation Mechanism

K+ and Na+ ions may react with ketonic group of the envelope protein will produce carbocation. This positive charge attracts the RNA and form a complex. So the virus RNA activity will be arrested. Hence the virus replication will be prevented. Thus the virus is inactive (Figure 6).

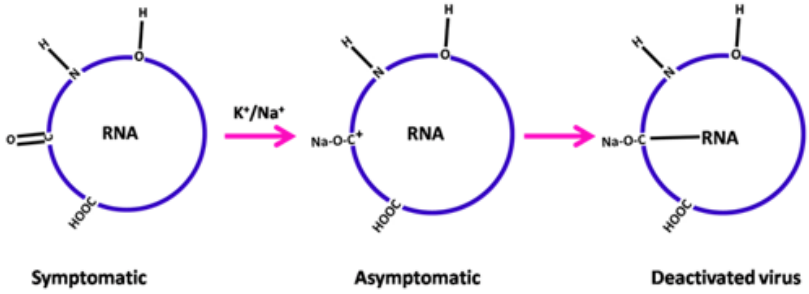

Figure 6: Proposed Virus deactivation mechanism.

The virus can be attacked by M^+ ion and causes virus deactivation

Conclusion

COVID-19 is a Nano-size corona virus (60-125nm). It has a spike protein which length is 20nm. The 20nm length is main cause for the human death. The 20nm spike protein can easily pick up the Fe^{3+}/Fe^{2+} by inserting the spike protein into the hemoglobin molecule. The virus forms a complex with hemoglobin Fe^{3+}/Fe^{2+}. So the hemoglobin loses its oxygen transport property leads to human death. However the other corona virus spike protein may not sufficient to form a complex with Fe^{3+}/Fe^{2+} by inserting the spike protein inside the hemoglobin molecule. Based on the chemical concept, the proteins, lipids, Nucleic acids and carbohydrates can form a complex with metal ions. In this view, we can apply non-toxic metal ions for control the COVID-19 virus the metal ions can form a complex with corona virus and leads to Asymptomatic virus. The Asymptomatic virus formation through the various mechanisms such as virus interlock, ion-exchange, wall thickening and virus deactivation. Thus the non-toxic metal ions to produce asymptomatic virus which means that the virus will not cause the death. From this we can understand that the applied metal ions are preferably forms a complex with spike protein and prevent the spike protein activity. So ultimately the spike protein cannot insert inside the hemoglobin and form a complex with Fe^{3+}/Fe^{2+}. Hence hemoglobin regular activity of oxygen transport will not inhibit. Thus the human death is prevented.

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