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Overview: Case study on COVID-19 Treatment

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Abstract: *This is the research article on case study on the treatment of syndrome due to novel-19 corona virus that is recently spread. The case study including spike formation (vaccinating),drug case study (cocktail), Ayurveda enhancing the immune system of the body. This is the experimental research on Novel-19 CoV disease due to corona virus that has sickend more than three hundreds of people in China and leads to many deaths. This attacking not only in China it is spreading all over the world day by day.*

Keywords: N-19CoV, Spike, Ayurveda, Immune System

I. INTRODUCTION

- The name "coronavirus" comes from the Latin Corona which means crown or hallo.
- As Novel-19CoV that originated in the Wuhan, China over the past few weeks, continue to spread more than 20countries.
- It was first entered in 1960 and spreading all over the world till today in the form of N-19CoV.
- COVID-19 is nothing virus is the family of virus that includes diseases like

A. SARS- Severe Acute Respiratory Syndrome.
B. MERS- Middle Acute Respiratory Syndrome and attack the world that is
C. N-19CoV- Novel-19 Corona Viruses.

Mechanism of COVID-19 and Site of Action on Body:

1. Vaccine converting viral sequences into the messenger RNA (m-RNA) then produce viral protein that can trigger immuneresponse.
2. Vaccine targets the desired syndrome and give site of action .
3. Vaccines release on protein on a viral surface called spike.

It hopes to apply same trick on treatment of N-19 CoV.

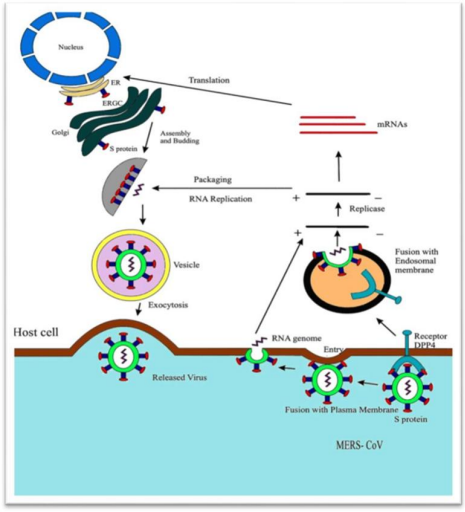

Fig. Mechanism of COVID-19 and site of action on body:

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II. TREATMENT

Vaccination (Spike Formation)

Historically, live attenuated vaccines have always received great importance because of its quickly available high immunogenic response due to presence of natural antigenic material . It is successfully used against various infectious diseases such as polio, rubella, chicken pox, and mumps etc . Further live attenuated vaccine possesses the great capacity to deliver/present different kinds of antigens across the virus life-cycle in their parent conformations. This is the first generation vaccine, various efforts have been reported to develop the live attenuated vaccine in the past against coronaviruses, entries 1–9). Bukreyev et al. developed an experimental live-attenuated SARS vaccine for direct immunization which was showed good immune response (production of neutralizing serum antibodies) in immunized eight.

Drugs (Cocktail, Anti-fleu, Anti-HIV drugs)

Chloroquine and Hydroxychloroquine

The drugs being tested for repurposing to treat COVID-19 tend to fall into two categories: those that target the viral replication cycle, and those that aim to control the symptoms of the disease. The amino quinolones chloroquine and hydroxychloroquine are polymerase inhibitors classically used as anti-malarial medications. In malaria, they inhibit heme polymerase, causing the accumulation of toxic heme in the parasite, which leads to its death. In COVID-19, it is thought that the drugs keep the virus outof host cells by blocking glycosylation of host receptors and breaking down the production of viral proteins by inhibiting endosomal acidification.

Lopinavir and Ritonavir

The human immunodeficiency virus protease inhibitors lopinavir and ritonavir work against coronaviruses via inhibition of 3- chymotrypsin-like protease. In vitro tests have shown the drugs to be effective against SARS-CoV-1 and the coronavirus that causes Middle East respiratory syndrome, but no tests have confirmed that same mechanism of action against SARS-CoV-2. A randomized open-label trial in China of some 200 hospitalized patients did not find the drug combination to be more effective than standard care, but further clinical trials are pending. According to the review in the *Journal of the American Medical Association*, the drugs may have limited appeal because of side effects, most notably increased nausea and diarrhoea and increased risk for liver damage, all of which could exacerbate the signs of COVID-19. In a randomized controlled study published in the *New England Journal of Medicine*, there was no association between treatment of patients with severe COVID-19 with lopinavir–ritonavir and reduction in SARS-CoV-2 viral load or significant clinical benefit. Another trial on people with mild COVID-19 shows reduced time of viral shedding, reduced time to alleviation of symptoms and reduced hospital stay in a group with lopinavir, ritonavir, IFN-B and ribavirin, as compared to a group receiving lopinavir and ritonavir alone.

Nafamostat and Camostat

Nafamostat and camostat are serine protease inhibitors both approved in Japan for use against pancreatitis in humans. Camostat was previously found in vitro to block the entry of SARS-COV by acting as an antagonist to the serine protease TMPRSS2, and researchers believe both nafamostat and camostat could have a similar effect in inhibiting SARS-CoV-2. In vitro, both have been found to block the entry of SARS-CoV-2 into cells, although one preprint study reported that nafamostat inhibited viral cell entry with an efficiency roughly 15-fold higher than that of camostat. These drugs are undergoing phase 2 and phase 2/3 clinical trials in the USA and Japan for their effectiveness against COVID-19, the primary outcome of which will be time to clinical improvement for nafamostat and reduced viral load after treatment for camostat.“These drugs are quite old, they’re well studied, they have known targets that are exactly the same protease that the virus uses,” says Anton Nureyev, professional services director at Elsevier, who has done screenings for possible COVID-19 drug treatments.

Amotidine

The over-the-counter H2 receptor antagonist heartburn medication famotidine is also been investigated as a possible treatment, after Michael Callahan and colleagues in China reported that patients in Wuhan who happened to be taking heartburn medication seemed less likely to die from or to be intubated during severe COVID-19. These observations

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have been published as a preprint, but have yet to be peer-reviewed. Hospitals in New York are currently testing intravenous famotidine with hydroxychloroquine and are recruiting hundreds for a phase 3 randomized trials for patients with COVID-19 who have critical status. The mechanism of action for famotidine is not clear at this time. Famotidine was thought to possibly bind a papain-like protease that is encoded by the SARS-CoV-2 genome and is known to be essential to the entry of SARS- CoV; however, none of the cell assay results so far support that hypothesis, says Robert Malone, a Virginia-based biodefense consultant working on the famotidine tests. Malone says his team is enthusiastic about the drug because of its low cost, low toxicity and bioavailability.

III. COURSE OF DISEASE

Date/Day	Symptoms	Test/Result	Treatment
29.04.2022/ Day 1	Severe body ache (8/10 on a scale of 1–10), Abdominal pain (2–3/10 on a scale of 1–10), Temp: 100 °F, Loss of taste and smell	NA	Day 1–13: *Sudarsana Churna* 4 tablets (2 gms) with room-temperature water, Tid; *Talisadi Churna* 1tspwith honey,Tid; *Dhanwantara Gutika* 2 tablets, Tid,and regulated diet.
30.02.2022/ Day 2	Immediately after starting the Ayurvedic medicines, abdominal pain became very mild and manageable. Body achepersisted. Temp: 101 °F, Continued loss of taste and smell, Mild coughing	NA	Same medicinescontinued
01.03.2022/ Day 3	Severe body ache, Peak Temp: 103 °F, Continued loss of taste and smell, Severe coughing. Cough was intermittent, dry, and he had no sputum production. All symptoms were worse in the evenings.	NA	Same medicines continued
01.03.2022/ Day 4	Severe body ache, Temp: 102 °F, Continued loss of taste and smell, Severecoughing.	NA	Same medicines continued
02.04.2022/Day 5	Body ache finally got better, Temp: 100 °F. Continued loss of taste and smell, No coughing.	Home test: Completed COVID-19 Nasopharynx test: Real time RTPCR in Bio Reference Laboratories in Fulton Street, New York	Same medicines continued

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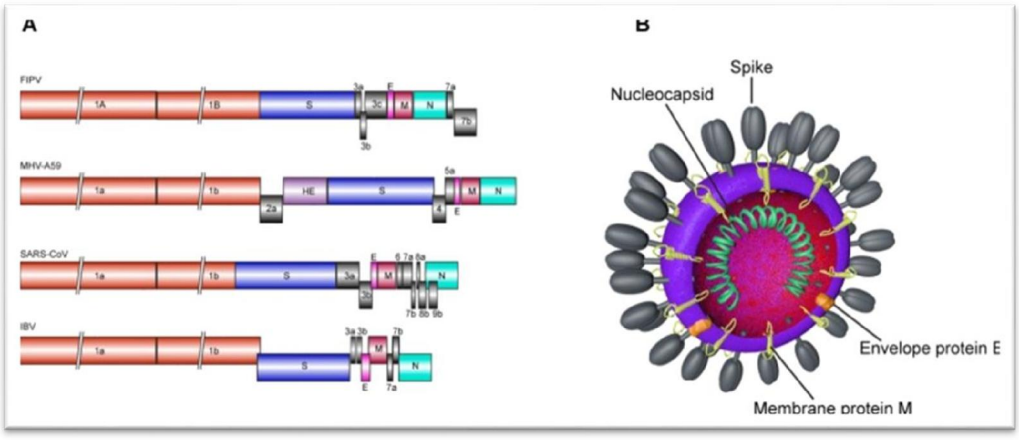
Date/Day	Symptoms	Test/Result	Treatment	
03.04.2022/ Day 6	No body ache, Normal temperature. Continued loss of taste and smell.	His doctor in New York verbally confirmed positive COVID19	Same continued	medicines
04.04.2022/ Day 7	Most symptoms disappeared other than loss of taste and smell. Appetite returned to normal.	NA	Same continued	medicines
From 05.04.2022 To 12.04.2022: Days 8–15	Patient felt mostly normal, except for lossof taste and smell.	The written report for the positive test result came on 07/04/2020 (Day 10)	From 11.04.2020/Day 14–2 *Vidaryadi Ghritam* 15 ml, Bid	
13.04.2022/ Day 16	His sensation of smell was partially restored.	His doctor in New York said that since he had recovered there would be no needto do a follow up test. However, patient ordered a home test from the same lab. The post fever COVID-19 nasopharynx sample was taken on 13.04.2020. Lab called him later and said "Insufficient material."	Same continued	medicine
28.04.2022/ Day 31		Patient, wanting to interact with his family safely, gave blood sample for testing. Test given in Enco Diagnostic Laboratory, Brooklyn, New York for COVID 19 IGM and IGG, serum.	Same continued	medicine
01.05.2022/Day 33		Results: SARS-CoV-2 IgG: REACTIVE SARS-CoV-2 IgG, Num: 7.084 SARS-CoV-2 IgM NON-REACTIVE	NA	

Spike Formation



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VI. METHODOLOGY

a) Spike Protein

The spike protein is a large type I transmembrane protein ranging from 1,160 amino acids for avian infectious bronchitis virus (IBV) and up to 1,400 amino acids for (N-19CoV). In addition, this protein is highly glycosylated as it contains 21 to 35 N-glycosylation sites. Spike proteins assemble into trimers on the virion surface to form the

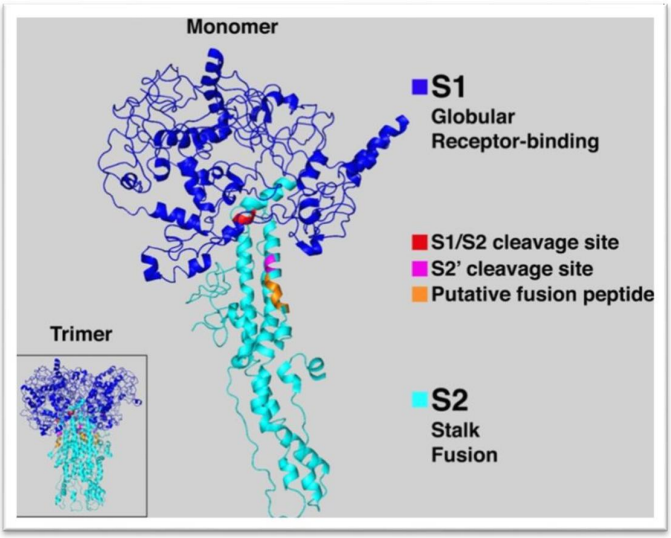
distinctive "corona",

b) Receptor Binding and Tropism:

The first coronavirus receptor identified was the MHV receptor, in 1991 [22]. MHV binds to the adhesion molecule CEACAM1 (Carcinoembryonic antigen-cell adhesion molecule) to infect cells. CEACAM1 is a type I transmembrane protein belonging to the immunoglobulin superfamily. CEACAM1 is a multifunctional protein that has roles in adhesion and cell signalling, among others. Suggests that the higher the fusogenic potential of the spike protein is, the less the virus depends on its receptor for entry.

c) Entry and Fusion

Enveloped virus entry can occur directly at the cell surface after binding to the receptor or after internalization via endocytosis with fusion taking place in the endosomal compartment. Fusion of viral membranes with host membranes is driven by large conformational changes of the spike protein. Over time, coronaviruses have modified their spike proteins, leading to the diversity of triggers used to activate their fusion. Thai Doctors said that "A combination of Flu and HIV medications are helping treat severe cases of the Novel-19 corona virus



V. CONCLUSION

- There is no totally dimishes corona virant at a present time so case study on COVID-19 treatment is must.
- The spike protein is the major determinant of corona viruses tropism.
- We had case studied on the treatment of syndrome due to COVID-19.

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REFERENCES

[1]. Sandrine Belouzard ,Jean K. Millet,2 Beth N. Licitra,2 and Gary R. Whittaker2,* Mechanisms of Coronavirus Cell Entry Mediated by the Viral Spike Protein published on 20JUNE 2015.

[2]. Vaccine development against coronavirus(2003 to present) : An overview ,recent advances, current scenario,opportunities and challenges.Kirtikumar c.Badgujar,Vivek C. Badgujar,Shamkant B. Badgujar.Elsevier Publication. https://doi.org/10.1016/j.dsx.2020.07.022Get rights and content

[3]. Ayurvedic treatment of COVID-19: A case reportAuthor links open overlay panelP.L.T.GirijaNithyaSivan Journal of Ayurveda and Integrative Medicine.volume 13,Issue1,January-March 2022.100329.

[4]. Yang Y, Islam MS, Wang J, Li Y, Chen X. Traditional Chinese medicine in the treatment of patients infected with 2019- new coronavirus (SARS-CoV-2): areview and perspective. Int J Biol Sci 2020;16(10):1708e17. https://doi.org/10.7150/ijbs.45538.P.L.T. Girija, N. Sivan / Journal of Ayurveda and Integrative Medicine 13 (2022) 1003294.

[5]. Astuti, Ysrafil.Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2): an overview of viral structure and host responseDiabetes Metab Syndr, 14 (4) (2020 July-August), pp. 407-412, 10.1016/j.dsx.2020.04.020.

[6]. K.C. Badgujar, D.V. Patil, D.V. Dhangar, V.P. Patil, A.B. Badgujar.COVID-19: epidemiology, clinical characteristics and potential possible drugs based on available case studies, Revision submitted manuscript, Corona viruses, Journal Bentham Science (2020).

[7]. J.S.M. Peiris, Coronavirus- an overview, medical microbiology(eighth ed.), Elsevier publication (2012).