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RESEARCH ARTICLE

ROLE OF HEALTH, HYGIENE AND IMMUNITY BOOSTERS TO COMBAT CORONAVIRUS- A REVIEW

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Abstract

Coronavirus is a novel virus identified firstly in Wuhan City of China. This Virus cause Respiratory diseases in humans and its spread is so swift that in February WHO has designated this Coronavirus disease is a Pandemic which has affected all parts of the globe. Coronavirus disease is shortly known as COVID-19 because it "COVI" stands for Coronavirus and "D" stands for Disease and "19" symbolises the year name because it firstly appeared in 2019. Current studies showed that transmission of virus is through the direct contact with infected person and can cause pneumonia like symptoms in 14 days and thereafter degrades the respiratory system. The only way to keep this virus at bay is to be hygienic and maintain good health. This paper comprises of how by maintaining good hygiene and a better immune system are key features to combat COVID-19.

Introduction:-

Coronaviruses are human and animal pathogens. In December 2019, a completely new coronavirus was identified because the reason behind a cluster of pneumonia cases in Wuhan, a city within the Hubei Province of China. (1, 2) It rapidly spread, leading to a virulent disease throughout China, followed by an increasing number of cases in other countries throughout the world. In February 2020, the World Health Organization labelled the disease COVID-19, which in expanded form is CORONA VIRUS DISEASE- 2019 a global pandemic. (3)Pandemic is demarcated as "occurring over a wide topographical area and affecting an exceptionally high amount of the population". A world coordinated effort is required to prevent the further spread of the virus. The virus that causes COVID-19 is designated Severe Acute Respiratory Syndrome CoronaVirus 2 (SARSCoV-2); previously, it had been observed as 2019-nCoV. (2) The virus contains of a core (i.e the inner part) of genetic material enclosed by acover with protein spikes. This provides it the appearance of a crown. The word Corona means "crown" in Latin. (4, 6) Since the primary reports of cases from Wuhan, a city within the Hubei Province of China, at the end of 2019, over 80,000 COVID-19 cases are reported in China, with the bulk of these from Hubei and surrounding provinces. (3)

The corona virus is a shell like structure which consists of genetic material to be transferred and proteins. In order to replicate and reproduce further, it requires a living host. When coronavirus goes into host and infects the host, its cell copies information, rearranges it and then immediately releases it to nearby cells. In the couple of minutes, the body's immune defence system interferes with its distinctive response. Granulocytes, scavenger cells and killer cells from the blood and lymphatic system are released by the body in to fight against the foreign body i.e the virus. They are supported by plasma proteins that act as messengers or help to fight and destroy the virus. It occurs quickly and

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efficiently. We are able to sign only small symptoms that system is working; such as body develops a cold or a mild fever. (4)

According to the researches, aging is also a factor related to immunity. Proper nutrition in the form of balanced diet is always needed at each step of life. Furthermore, a particular nutrient may alter the whole immune pattern as deficiency of one nutrient may affect the proper biotransformation of another nutrient and provoke a chain reaction of secondary malnutrition (5). It is well-known that underprivileged people with compromised nutritional status suffer a higher risk of infection (6-8).

Fig 1:- Health, Hygiene & Immunity boosters for COVID-19.

Route of transmission:

Understanding of the transmission risk is incomplete. Epidemiologic investigation in Wuhan at the commencement of the outbreak identified an initial association with a seafood market that sold live animals, where most patients had worked or visited and which was subsequently closed for disinfection. (7, 9) However, because the outbreak progressed, person-to-person spread became the foremost mode of transmission. Evidence continues to be emerging, but current information is indicating that human-to-human transmission is going on. (10) The routes of transmission of COVID-19 remain unclear nowadays, but evidence from other coronaviruses and respiratory diseases indicates that the disease may spread through large respiratory droplets and direct or indirect contact with infected secretions. (2, 8)

Clinical features:

Typically, Coronaviruses present with respiratory symptoms. Among people who will become infected, some will show no symptoms. People who do develop symptoms may have a gentle to moderate, but self-limiting disease with symptoms almost like to the seasonal flu. (11-12) Symptoms may include:

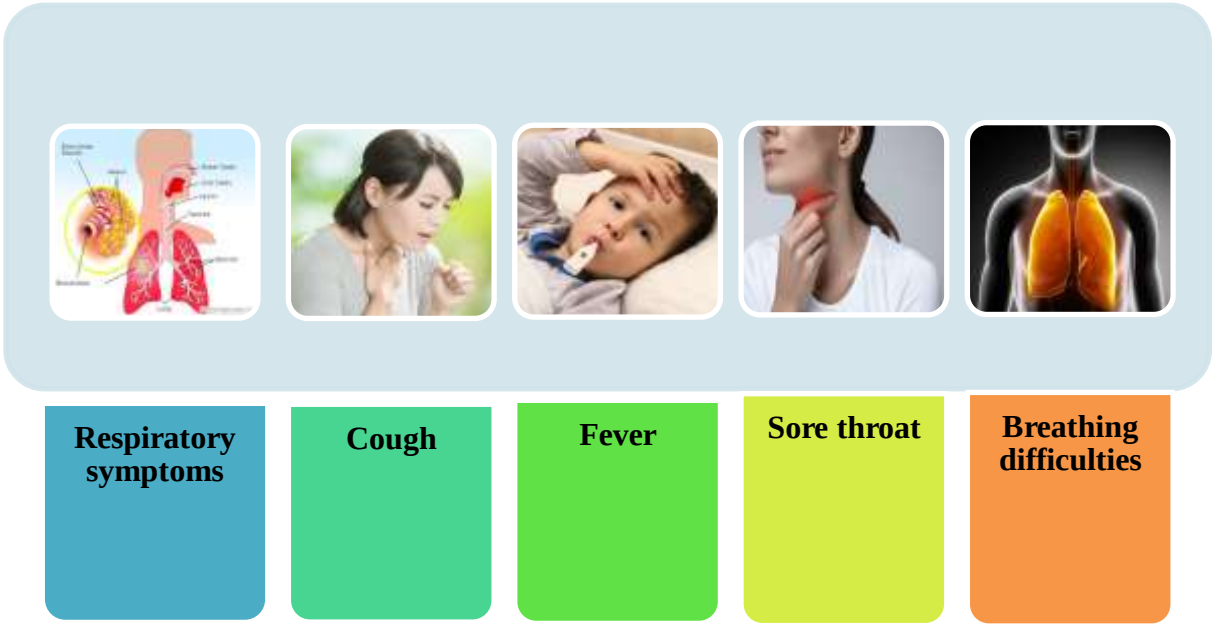

Fig 1:- Symptoms of COVID-19.

High Risk Population:
Coronavirus is causing COVID-19 which infects people of all ages. However, evidence up to now suggests that two groups of individuals are at anadvanced risk of getting severe COVID-19 disease.

Older people (people over 70 years of age)
People with serious chronic illnesses such as:
1. Diabetes
2. Cardiovascular disease
3. Chronic respiratory disorder
4. Cancer
5. Hypertension (3, 11-12)

Incubation period:
The gestation period for COVID-19 is assumed to be within 14 days following exposure, with most cases occurring approximately 4-5 days after exposure. A study was done on patients with definite symptoms of COVID-19, and it was concluded that the average incubation period is 4 days (in some cases it is variable between 2-7 days). (13)

Importance of Hygiene DuringCovid -19:
What does one comprehends health and hygiene? How it affects our lives within the path of happiness and success?

Health can be well-definedas physical, mental, and social wellbeing, and as a resource for living a full life.Health doesn't always meansthe absence of any disease, but it is the capabilityof a body to recoverand bounce back from illness and otherproblems.Features for good healthinclude genetics, environment, relationships, and education. (14-16)

The Conditions or practices which are conducive in maintaining good health and preventing disease, is especially through cleanliness (hygiene & sanitization). Washing hands, coughing into your elbow and regular house cleaning are all a portion of good hygiene. Hygieia was the Greek goddess of health, cleanliness and sanitation, so it's not hard to understand where the expression hygiene comes from. (15-18)

Ways to practice hygiene:
1. Practice Social Distancing
2. Practice Good Hygiene

Practice Social Distancing:
Avoid gatherings such as fairs, gatherings in religious places, social functions etc. Maintain a safe space of at least 1 meter between you and other people when in public places, particularly if they are having symptoms such as cough, fever etc. to avoid direct droplet contact. One must stay at home as much as possible. If possible, stay in a separate room at home with an attached toilet which must be used by you only. Try to keep a distance of at least 1 meter from others. To practice social distancing we must avoid physical contact like hand holding, handshakes, hugs, getting intimate etc. One must avoid touching surfaces of susceptible areas such as table tops, chairs, door handles etc which carries virus for a long period of time. (18-20)

Social Distance in market implies that, once we walk around market to buy vital items or to get money from ATM's and banks we should monitor the guidelines of social distancing and maintain a distance of 6-8 feet. This is a comfortable and healthy distance for not to get infected by others. Regulating distance between oneself and others provides us several assistances like providing safety from many infections. (18-21)

Practice Good Hygiene:
Wash your hands regularly using soap and water: Steps for hand washing after coming home from outside or meeting other personsparticularly if they are ill: After having touched your face, coughing or sneezing. Before cooking food, eating or feeding children.Wear a mask all times. If masks are not available, one can cover his/her face with a cotton cloth, take a clean cotton cloth, fold it into a double layer and tie it on your face to cover your nose and mouth. Use separate dishes, towels, bedding etc. which should be cleaned independently. Planes such as floor, table tops, chairs, door-handles etc. must be disinfectedandcleanedat least once a day. (22-25)

Importance of Sanitization:
Sanitization means to get rid of dirt, germs, etc., as by cleaning or sterilizing to make less aggressive by eliminating anything unwholesome, objectionable, incriminating, etc.

Coronavirus causes a disease COVID-19 and a lot of evidence is being accessible about how help prevent Coronavirus (COVID-19) from affecting you and your family. Maybe the most important thing to know is that healthspecialists agree on this: One of the best measures to stay fit is to wash your hands with soap and water. But if those aren't available, hand sanitizer may help get rid your hands of unwanted germs. (19-20)

Health And Hygiene Can Only Win Over This Pandemic Disease:
Health and hygiene is an important phenomenon for a healthy and happy life. Health education plays a vital role in community hygiene. To prevent this pandemic disease and have a positive attitude towards health, you need a correct and complete knowledge about health. (21-25) Health is related to cleanliness, and cleanliness is one of the main ways to defend corona disease and self-preservation. Hygiene allows a person to live in a healthy relationship with the environment. It applies to the individual and the community. To be healthy, know that hygiene and sanitation play a significant role. (25-28)

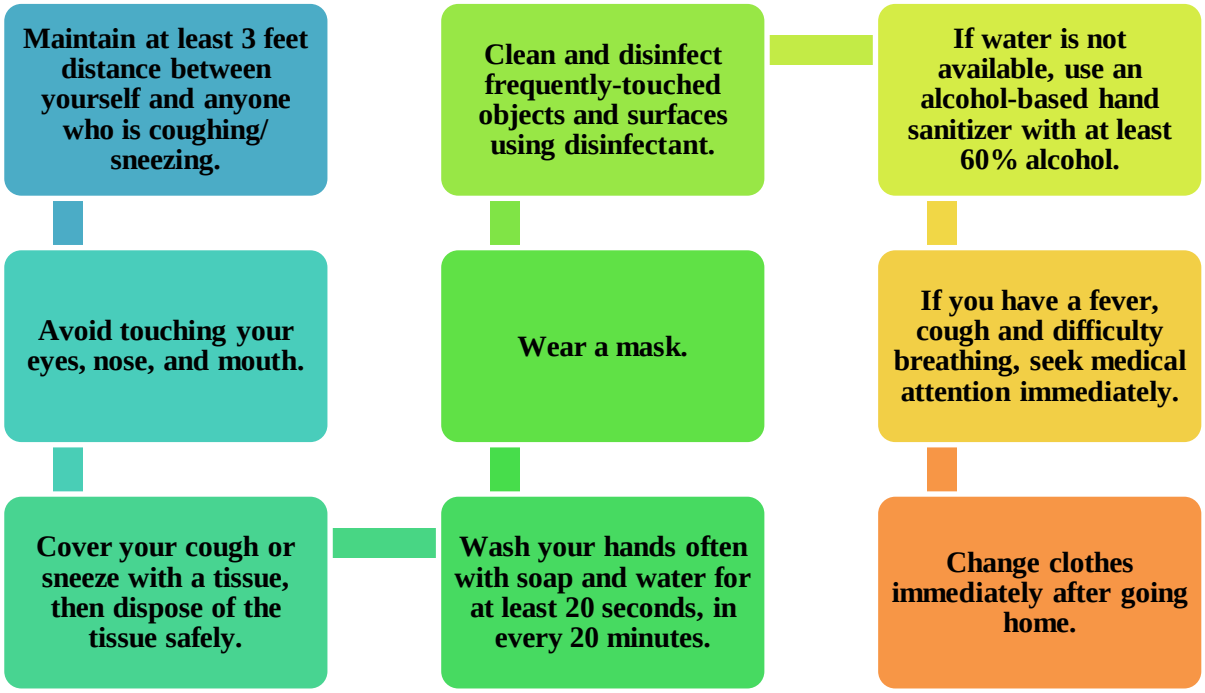

Fig 2:- Measures to keep virus at bay.

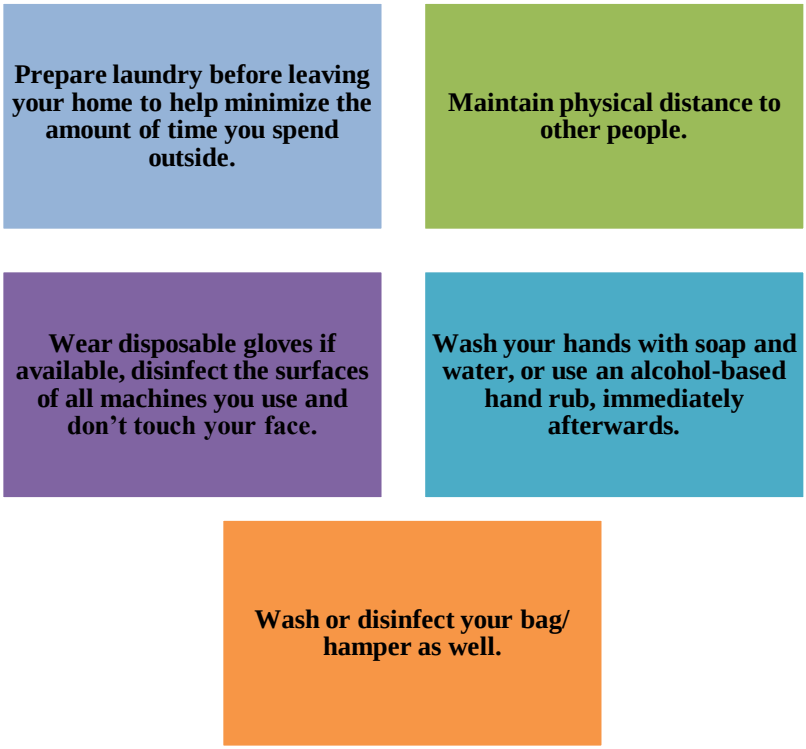

Fig 3:- How hygiene is maintained while going out.

Role of Immunity Boostersin Covid-19 Treatment:

Immunity Boosters:

It can help your immune system fight infection. One, whodoesn'texercise regularly, ismore proneto get colds, than someone who does regular exercise. Exercise can also enhancebody's ability to feel-goodand also helps to get a better sleep. (29-30) Both ofthesearecrucialforimmune system. Many people takevitamin C after they've caught a cold, this is sobecause it helps build upimmune system which gets down by getting infected by germs.VitaminC is thought to increase the production of white blood cells which is known as the army of human body as WBCs fight against infections. (29-31)

The immune system protects the bodyagainst disease or other foreign bodies. While having proper functioning, the immune system recognizesand attacks a variety of germs, includingviruses, bacteria and parasites, while distinguishing them from the body's own healthytissue. (32)

Vitaminsthatare best for BoostingyourImmunity are:

1. Vitamin Cis one of the chiefimmunityboosters of all. This is a fact that lack of vitamin C in your diet can even makeyoumoreprone to gettingsick.
2. Vitamin B-6 is important in supporting biochemicalreactions ongoing in the immune system.
3. Vitamin Eis aninfluentialanti-oxidant which removes the free-radicals from the bodythat helps the body to fight infection. (31-34)

Role of Antioxidants against Covid-19:

Anti-oxidants:

The substances that can prevent or reduces the rate of damage to cells caused by free radicals, unstable molecules produced by body as a reaction to environmental conditions are known as anti-oxidants. (25, 34) We get anti-oxidants from two sources one is natural and other is artificial. Under natural sources we get anti-oxidants from plants and there are certain plants which are rich in anti-oxidant contents. Plant-based antioxidants have a category of phytonutrient, which is also known as plant-based nutrient. (34-35) Human Body also body also produces some anti-oxidants, which we name as endogenous antioxidants. We have another class called exogenous anti-oxidants because they come from outside the body. Role of anti-oxidants is neutralize free radicals produced in our bodies, and ultimately boost the body's health. (36)

Benefits of including anti-oxidants in diet:

Antioxidants can shieldthe body against the cell damage that is caused by free radicals, which is ultimately a result of oxidative stress. Activities and processes that can lead to oxidative stress include excessive exercise, tissue trauma, due to inflammation and injury, consumption of certain foods, especially refined and processed foods, trans fats, artificial sweeteners, and certain dyes and additives, smoking, exposure to radiations, chemicals, such as pesticides and drugs, including chemotherapy. (34-36)

It is believed that proper intake of anti-oxidants in our diet reduces the risk of getting infected.A study based on anti-oxidants concluded that "They act as radical scavenger, hydrogen donor, electron donor, peroxide decomposer, singlet oxygen quencher, enzyme inhibitor, synergist, and metal-chelating agents". (30-31)

Food source for anti-oxidants:

The greatest sources of anti-oxidants are plant-based foods, like fruits and vegetables. Foods that contain high amount of anti-oxidants are usually referred to as "functional food" or "superfood". (32-34) To attain some precise antioxidants, we must try to include the following in our diet:

1. Vitamin A:Source of vitamin A is dairy products, eggs, and liver.
2. Vitamin C:We get vitamin C by citrus fruits including berries, oranges, lemon, grapes, and bell peppers.
3. Vitamin E:Source of vitamin E is Nuts and seeds, sunflower and other vegetable oils, and green, leafy vegetables.
4. Beta-carotene:Fruits and vegetables which are bright in color have a good amount of β-carotene such as carrots, peas, spinach, and mangoes.
5. Lycopene: Red & Pink color fruits and vegetables are good source of lycopene example tomatoes and watermelon.
6. Lutein: We get lutein from green, leafy vegetables, corn, papaya, and oranges.

7. Selenium: We get selenium from wheat, rice, corn, pulses and other whole grains, as well as nuts, eggs, cheese, and legumes. (32-36)

Ayurveda Helps Boost Immunity:
Ayurveda has the peculiarity of being the "oldest medical system known to man and the oldest and most completedivine teachings in the world". Ayurveda is based on the principle of maintaining a balance between the interrelated relationships within the body and mind. Ayurveda word combines two Sanskrit words in its full name: Ayu which means life or lifespan and Veda meaning knowledge. Thus, Ayurveda means "the science of life." (37)

The entire science of ayurveda is based on the 'Five Great Elements' theory. The five elements are earth (prithvi), water (jal), fire (agni or tej), air (vayu) and ether or space (akash). Ayurveda graspsmind, body, and spirit likewise and has specific methods for working on each. (38)

It divides the constitution of people into three humoral categories-
1. Vata (ether/air): Means mental mobility.
2. Pitta (fire): Governs digestion.
3. Kapha (water/earth): Responsible for weight and stability. (37-38)

According to good management, Ayurveda asserts that the 'Fault' or Dosha, the 'Tissue' or Dhatu and the 'Impurity' or Mala must be in synchronization with each other, having all the components balanced properly. Study of Ayurveda is basically therapeutic measures taken either to prevent diseases or cure them. Thus, Ayurvedic procedures are done either to detoxify the body or as a prelude to strengthening the immune system. (38)

Some immunity boosting Ayurvedic herbs:
Ayurveda says thatherbs suchastulsi,cinnamon,blackpepper, ashwagandha, chyavanprash, shunthi(dry ginger) and raisins and regular yoga are potent aidstoincreasethebody's immunity against harmful viruses. It also advised usage of turmeric, cumin, coriander and garlic in cooking. Jaggery, fresh lemon juice too can be helpfulinthefightagainst Covid-19. Also, a healthy immune system will help in recovery from the coronavirus infection. (39-40)

Conclusion:-
Current study showed that the only way to keep this virus at bay is to be hygienic and maintain good health. The COVID-19 pandemic is straining health systems worldwide. The best defence against any outbreak is a strong health system. People also need to comply with the highest standard in precautions, especially in hygiene practices, and the provision of adequate supplies including personal protective equipment.One can be safe and protected by maintaining good hygiene practices, by practicing social distancing and by having a better immune system are key features to combat COVID-19. One can follow the instructions to keep virus at bay given in the article and can add vitamins and anti-oxidants in their diet to have a good immune system to fight against all infectious diseases. Due to this COVID 19 pandemic as our scientist are searching and developing the vaccines, till then we have only prevention to avoid in contact with this corona virus so.

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