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Adaptive nutrients in strengthening the immune and respiratory system concerning COVID 19

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ABSTRACT

SARS – CoV – 2 is a deadly infectious virus which targets the respiratory system and leads to a disorder known as COVID 19. It is easily communicable between human beings. MERS –Corona Virus, SARS-Corona Virus, and SARS-Corona Virus -2 can leads to severe illness, whereas; novel coronavirus which related with several species which includes HKU1 (HCoV-HKU1) originated from infected mice. NL63, HCoV-NL63 is a species of Coronavirus that was recognized in 2004 in a child with bronchiolitis from the city of Netherlands. HCoV-OC43 is a virus which leads to infection generally occurs at respiratory tract around upside, and Human coronavirus 229E (HCoV-229E) is connected with a common cold and also symptoms in healthy individuals. Hosts with higher antioxidants and immune capacity can be easily tackled and fight against an antigen. Started from china there so many countries like the USA, Spain, Italy, France, Iran, India, England, Belgium and Pakistan which are profoundly affected by Coronavirus as on April 2020. This present review, papers focused on structure, platforms and ill effects of Coronavirus, and also discloses about the nutrients which include vitamins, minerals, polyphenols and antioxidants; the nutrients under discussion can support the healthy functioning and also strengthen the respiratory system were reviewed.

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INTRODUCTION

COVID 19 is a deadly viral disease that occurs between human beings from infected persons, surfaces, materials, objects which were exposed to the virus contact. The affected persons were subjected to symptoms like flu, dry cough, fever, tiredness, destruction or complications in breathing and finally, maximum people results with death. The outbreak of Coronavirus is generic and pandemic. Nutrition and immune health-based research related to covid 19 were not yet initiated, and hence this article expresses the idea or possibilities to strengthen the immune and respiratory system.

Origin

SARS Coronavirus was first stringed by Koch's postulates, as it was a single strand RNA Virus found on Centre for Disease Control in British Colombia on 23^{rd} April 2003 (Marra *et al.*, 2003) and later on an updated form of Coronavirus was cardinally reported during the month of late December in the city of Wuhan of China (Lu *et al.*, 2004) there are now crossed 872447 cases as on 1^{st} April '20 in worldwide have been confirmed as they were infected with Coronavirus and 43269 deaths were registered with the cause of COVID 19 (Pojer *et al.*, 2013)

Structure

The Figure 1 shows structure of coronavirus.

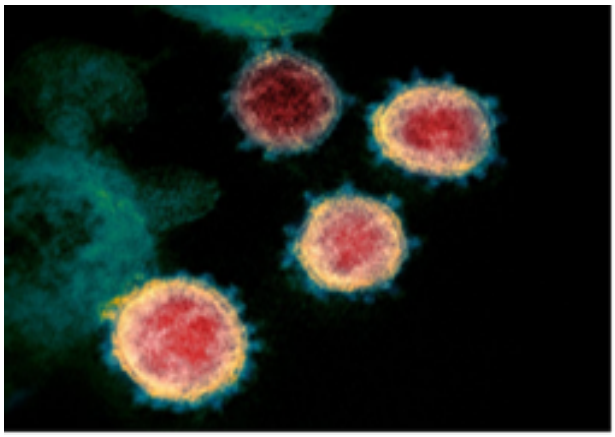

Figure 1: Electron Microscopic view of structure of coronavirus

Source* U.S. National Institutes of Health/AP/Shutterstock (coronavirus images, 2019)

Platforms of Coronavirus

SARS Coronavirus can be spread from one infected person to the next person through the direct or indirect exposure of saliva/ respiratory beads as a medium, and it can be circulated rapidly with one another through infected or contaminated hands, objects, air, clothes, surfaces etc.,

Ill effects

Pneumonia was the first complication which occurs during the disease, and the major complication is Severe Acute Respiratory Syndrome (SARS).

Nutrient supports the immune system and respiratory health

As the current research shows that there are no preventive or curing drugs against covid 19, but can strengthen the immune as well as respiratory system by adopting healthy nutrients to support our health. To strengthen our immune system as well as our respiratory system, people might follow the nutrients. People with decreased immunity can also be get aided from the supplementation of zinc and vitamin A and zinc. Research shows that vitamins, particularly vitamin C, antioxidants have a preventive and defensive effect against pulmonary diseases (Romieu, 2005). According to the American Lung Association, a diet lower in carbohydrates and higher in fats can help individuals with COPD to breathe easier.

Anthocyanin

Prolonged consumption of anthocyanins rich foods plays a significant role in protecting cardiovascular disease, controls neuro abnormalities, improves vision health, protects from diabetes mellitus, regulates fat cells, anti-inflammatory effects, and protects from cancer (Nielsen and Eckhert, 2020) berries, cherries, grape juices, red – onions. Cabbage, grapes, beets, prunes, plums, raisins, apples, beans, peas, radish, pomegranate, etc., are some of the food sources.

Flavonoids

Contribute the properties which include antioxidative, anti-mutagenic, anti-inflammatory and also prevents cancer. Good sources of flavonoids are tea, fruits, vegetables, roots, barks, grains, stems, flowers, etc.,

Boron

Boron supplementation of boron, boroester, fructo borate and borates, to humans, elevates swelling stress markers (Covid-19, 2019) prunes, raisins, nuts, potatoes, grains, milk, coffee, apple, dried beans are some of the boron rich foods.

Carotenoids

Beta-carotene is essential for healthy growth, development. It plays a vital role in the excellent functioning of the immune system, skin health and vision of living beings. Beta – carotene helps in neutralizing free radicals- which acts molecules of oxygen damages lipids present in cell membranes and also proteins (Pavia and Russell, 1999). Yellow, orange and red colour foods like banana, papaya, jack fruit, tomatoes, egg yolk, apple, carrots, cantaloupe, watermelon and also with greens like spinach mustard greens etc.,

Folate

Folates express its unique role in the biosynthesis of nucleotide (purines and thymidine); and so, the remethylation of homocysteine, production and repair of DNA to produce methionine (Chan *et al.*, 2013). Excellent sources of folates include green leafy vegetables, orange juice, beans, other legumes, broccoli sprouts (Prenatal Nutrition, 2009).

Iron

Hemoglobin and myoglobin gives a fundamental nutrient called iron which helps in transport, distributes oxygen to cells and storage of transitional tissues. Few good sources of iron are poultry, organ meats, fish, meat, greens, dates and seafood (McDermid and Lönnerdal, 2012).

Magnesium

Synthesis of proteins, nucleic acids and energy process can be done with the contribution of magnesium (Mg^{2+}) and also played a crucial role in metabolic reactions in the process of glycolysis. It

is also vital for neuromuscular functions, oxidation, bone and immune development. Vegetables, fruits, milk, legumes, nuts, meat, fish and whole grains are few excellent sources of magnesium (Costello *et al.*, 2016).

Vitamin B-12

Synthesis of DNA, methionine regeneration for the synthesis of methylation and protein, prevention of accumulation of homocysteine. Animal food sources such as eggs, products of dairy, meat, shellfish and fish. Vitamin B-12 is found only in non-veg foods (Allen, 2012).

Vitamin C

Vitamin C contributes a significant role in ascorbyl radical oxidation by donating electrons that shows as reductant, conclusive studies have proved that vitamin C involved in vascular function. Vasorelaxation by rising nitric oxide bioavailability or synthesis. It protects oxidative damage on macromolecules which is the primary cause of inception and breakthrough of multiple chronic and acute diseases. Rich sources of vitamin C include guava, orange, grapes, papaya, bell pepper, broccoli, amla, cauliflower, tomatoes and greens. (Lykkesfeldt *et al.*, 2014)

CONCLUSIONS

As there is no prescribed medicines or nutrient which prevents or fights against covid 19 but with our sound immune system the survival rate might be high when compared with lower and hence it is suggested to stay healthy to break the virus.

Conflict of interest

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