

Strategies and avenues for COVID-19 – Ayurveda perception

Man has been facing many challenges from its existence; among them, issues related to health preservation and coping up with new diseases seems to be most concerned. To maintain quality of life and to live a long life that too without illness is a dream of every human being. To achieve this goal, efforts are being done time to time, but somehow due to enigmatic nature, changing environment, changed lifestyle, and demands of human, complete success in this regard is still to achieve. Ayurveda system of medicine encompasses health maintenance and preservation as its prime goal. Today, during the pandemic of COVID-19, this principle of healthy lifestyle has been endorsed as the important component of prevention and management of this disease.

To plan a management of any disease either as preventive or from curative aspect, needs a through insight of the disease. Looking at the course of events of this newly emerged viral disease that has been named as COVID-19 and reported to be caused by SARS-CoV 2, it seems that the root cause of the disease is unrighteous acts (*Pragyaparadha* or *Adharma*) which had led to faulty eating habits (*Mithya Ahara*) like eating animals that too affected by the virus (*Dushita*). Further, due to infectious (*Sansargaja*) nature, the disease has spread acutely in the mass and thus has been declared as a global pandemic (*Janapadodhwamsa*). The clinical presentation of the disease indicates that it is a disorder of the respiratory tract (*Pranavaha Srotas*), initially involving the upper respiratory tract and later alveoli or gas exchange units of the lungs. The main *Doshas* involved are *Pitta* and *Kapha* and is characterized by fever, sore throat, nasal discharge, or irritation with dry cough. If we look at prognosis of this disease, it is curable (*Sadhya*), if the patients' immune system (*Rogi Bala*) is strong and viral load (*Dosha*) is minimum and incurable (*Asadhya*), if it is just opposite condition and specially when the case is elderly or suffering with immune compressed conditions. Faulty lifestyle (*Mithya Ahara* and *Vihara*) and low immunity (*Avara Rogi Bala*) are the predisposing factors.

Shvasnaka Jvara mentioned in the appendix of Madhava Nidana, the text book for diagnosis in Ayurveda, bears similarity with the presentation with COVID-19, in regard to cause, presentation, and prognosis. As per this text, *Shvasnaka Jvara* is caused by a microorganism (*Kitanu*), which is of four varieties. Among these, three microbes generate severe condition and remaining fourth is the most fatal one. Further, it has been mentioned that those persons who are weak, exhausted, or suffering from indigestion or taking excessive alcohol or suffering from diseases of the liver or kidney or a person who is continuously following faulty lifestyle, when come in contact with the infected person of *Shvasnaka Jvara*,

then this disease is transmitted and it presents with fever. This disease usually occurs in spring, monsoon, or winter season.^[1]

While describing its pathophysiology, it is mentioned that when this microbe enters the microchannels of the lungs, and the toxin is released by these microbes, thrombosis occurs in the vessels of the lungs. This may then produce inflammation in either one or both the lungs. This produces fever, dyspnea, and pain in laterals of the chest.^[2] The premonitory symptoms mentioned for *Shvasnaka Jvara* are a pain in the lateral of the chest, coughing, and lethargy or tremors.^[3] The symptoms of the disease are high-grade fever associated with excessive thirst, anorexia, increased rate of respiration, pain in the laterals of the chest, coughing, hemoptysis, and tachycardia.^[4] These symptoms usually last for 8, 9, or 10 days, and then, suddenly, the temperature falls with excessive sweating and can be fatal.^[5]

These descriptions are similar to the findings of the study done by the World Health Organization-China Joint Mission on Coronavirus Disease 2019 on 55,924 confirmed cases of COVID-19^[6] that has reported the most common signs and symptoms of COVID as fever (in 87.9%), dry cough (in 67.7%), fatigue (in 38.1%), sputum production (in 33.4%), dyspnea (in 18.6%), sore throat (in 13.9%), headache (in 13.6%), and myalgia or arthralgia (in 14.8%). As per this study, the prognosis of this disease was poor in the individuals who were over 60 years of age, especially those with underlying conditions, such as hypertension, diabetes, cardiovascular disease, chronic respiratory disease, and cancer.^[6]

Although much has been explored about the nature of SARS COV-2 virus, still, scientists and health-care systems have been unsuccessful to effectively check the outbreaks of this disease and to bring down the fatality rate. This has compelled the different systems of medicine to come at the same platform to find an effective solution for the prevention and control of the disease. Many collaborative and multicentric trials have been initiated which are inter-, intra-, or multidisciplinary and the results are yet awaited.

However, the key element of the control of this disease declared by scientists is prevention by adopting of appropriate methods. This is similar to the quotes of Sushruta which mentions that avoidance of cause is the only most effective step in the management of any disease.^[7] Hence, though there is a need of searching an effective treatment of COVID-19, there is an equal need of planning the researches that focus on the prevention of spread of this disease and to establish certain drugs which can be taken as prophylactic or to boost the immune system of the respiratory tract. The recent studies have indicated that ACE2 receptors are the most favorable sites for the SARS-COV-2 virus,^[8] and epithelial cells, alveolar

macrophages, and dendritic cells are three main components for innate immunity in the airway.^[9] For SARS-CoV entry into a host cell, its S protein needs to be cleaved by cellular proteases at two sites, termed S protein priming, so the viral and cellular membranes can fuse.^[10] Specifically, S protein priming by the serine protease TMPRSS2 is crucial for SARS-CoV infection of target cells and spreads throughout the host.^[11] These findings can pave a pathway to define strategies for the development of effective therapies or prevention for COVID-19. These outcomes indicate that such herbs which can help in forming of antibodies that can block SARS-CoV-2 binding to the receptor or inhibit TMPRSS2 could be used to prevent SARS-CoV-2 entry into host cells. Further, it can also be added that any such drugs which reduce the susceptibility of the person and virulence of the SARS COV-2 can be helpful in the prevention of COVID-19. As per the Ayurveda, three factors play a major role in the initiation of pathogenesis and manifestation of the disease, the cause (*Nidana*), vitiation of the bio humors (*Dosha*), and susceptible tissue (*Dushya*). Hence, avoidance of the cause, reversal of vitiated state of *Dosha* and increasing the resistance of *Dushya* is the ultimate goal for the prevention of this disease. Recent studies also indicate that recovery from the COVID-19 infection may require a vigorous innate and acquired immunity and epithelial regeneration at the site of damage of alveolar Type II cells^[12] and thus, researches focusing on such herbs which can induce either of these actions may be the cornerstone in the discovery of potent medicine for the prevention and effective management of COVID-19.

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References

1. Shastri S, editor. Madhava Nidana of Madhavkara, Parishishta Prakaran Shvasnak Jwar Nirakaran. Ver. 2-6. 29th Reprint edition. Varanasi: Chaukhamba Sanskrit Sansthanan; 2000. p. 444.
2. Shastri S, editor. Madhava Nidana of Madhavkara, Parishishta Prakaran Shvasnak Jwar Nirakaran. Ver. 11-13. 29th Reprint edition. Varanasi: Chaukhamba Sanskrit Sansthanan; 2000. p. 445.
3. Shastri S, editor. Madhava Nidana of Madhavkara, Parishishta Prakaran Shvasnak Jwar Nirakaran. Ver. 14. 29th Reprint edition. Varanasi: Chaukhamba Sanskrit Sansthanan; 2000. p. 445-6.
4. Shastri S, editor. Madhava Nidana of Madhavkara, Parishishta Prakaran Shvasnak Jwar Nirakaran. Ver. 15-21. 29th Reprint edition. Varanasi: Chaukhamba Sanskrit Sansthanan; 2000. p. 446.
5. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). Available from: <https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf>. [Last accessed on 2020 Jun 12].
6. Acharya YT, editor. Sushruta Samhita by Acharya Sushruta, Uttar Tantra. Ch. 1, Ver. 25. Reprint Edition. Varanasi: Chaukhamba Sanskrit Sansthanan; 2010. p. 597.
7. Li W, Moore MJ, Vasilieva N, Sui J, Wong SK, Berne MA, *et al.* Angiotensin-converting enzyme 2 is a functional receptor for the SARS coronavirus. *Nature* 2003;426:450-4.
8. Yoshikawa T, Hill T, Li K, Peters CJ, Tseng CT. Severe acute respiratory syndrome (SARS) coronavirus-induced lung epithelial cytokines exacerbate SARS pathogenesis by modulating intrinsic functions of monocyte-derived macrophages and dendritic cells. *J Virol* 2009;83:3039-48.
9. Belouard S, Chu VC, Whittaker GR. Activation of the SARS coronavirus spike protein via sequential proteolytic cleavage at two distinct sites. *Proc Natl Acad Sci U S A* 2009;106:5871-6.
10. Hoffmann M, Kleine-Weber H, Schroeder S, Kruger N, Herrler T, Erichsen S, *et al.* SARS-CoV-2 cell entry depends on ACE2 and TMPRSS2 and is blocked by a clinically proven protease inhibitor. *Cell* 2020;181(2):271-80.
11. Matsuyama S, Nagata N, Shirato K, Kawase M, Takeda M, Taguchi F. Efficient activation of the severe acute respiratory syndrome coronavirus spike protein by the transmembrane protease TMPRSS2. *J Virol* 2010;84(24):12658.
12. Mason RJ. Pathogenesis of COVID-19 from a cell biology perspective. *Eur Respir J* 2020;55:2000607.

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