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Short Communication

Including matily herbal and spices mix in Indian diet may reduce complications of COVID-19 infection in the general population

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ABSTRACT

Coronavirus is a pandemic affecting the world over, cause human deaths, morbidity and causing economic loss due to frequent lockdowns. The virus mediates injury to multiple organs leading to micro- and macro vascular thrombosis. Aspirin shows promise for treatment of adult COVID-19 patients because of its anti-inflammatory properties and antithrombotic properties. We can take aspirin only under medical supervision. Against such a backdrop, there is a need to find out alternative sources of substances which act like aspirin and yet a component in the everyday diet. "Salicylic acid, the main active ingredient in aspirin, is "ubiquitously present in fruits and vegetables," the highest concentrations are found in herbs and spices' this drew our attention to study the role of salicylates in human nutrition. Salicylate consumption varies in different populations depending on the cuisine and methods of food preparation. Therefore, we developed a herbal mix comprising ingredients with high salicylates, to supplement it in the Indian diet. The herbal mix can be prepared in any kitchen in India. We trust adequate salicylate intake in the Indian population may reduce complications of COVID-19, in case of any infection

Keywords: COVID-19, Hebal and spices mix, Indian diet

INTRODUCTION

Coronavirus is a pandemic affecting the world over, cause human deaths, morbidity and drastically affecting the economy of nations due to frequent lockdowns. Corona virus infection in humans may be symptomatic or asymptomatic. The virus may cause injury such as clotting of capillaries in both symptomatic and asymptomatic individuals. Virus-mediated injury to multiple organs, mainly the respiratory tract, activation of immune response with the release of pro-inflammatory cytokines, and over activation of the coagulation cascade and platelet aggregation leading to micro- and macro vascular thrombosis are the main pathological features of COVID-19".[1] A review on the disease, the complications associated with the disease and the role of aspirin in reducing the time of hospitalization is given elsewhere.[2] Of late, aspirin shows promise for treatment of adult COVID-19 patients.[1-4]

History of aspirin™

The Assyrians and the Egyptians were aware of the analgesic effects of a decoction of myrtle or willow leaves for joint pains. Hippocrates recommended chewing willow leaves for analgesia in childbirth and Reverend Edward Stone was the first person to describe the antipyretic effects of willow bark".[5] Though Charles Gerhardt in the beginning of 19th century extracted salicin from willow bark, it was Felix Hoffmann who tested the extracted compound on himself and his father who suffered from chronic arthritis. He found that the

compound relieves arthritic pain. Thus, the legend aspirin got a place in the history and Bayer laboratories rose to fame for manufacturing it. It was First used for its potent analgesic, antipyretic and anti-inflammatory properties.[5] Later on aspirin was successfully used as an antithrombotic agent.[6]

Mechanism of action of aspirin

Sir John Vane explained aspirin's active mechanism as an inhibitor of prostaglandin synthetase and received the Nobel Prize in Medicine for this work in 1982.[5,7] They have identified two isoform of cyclooxygenase, (COX-1 and COX-2), each possessing similar activities, but differing in characteristic tissue expression. The cox enzyme is now a target of drug interventions against the inflammatory process.[5] We describe elsewhere the mechanism of aspirin action.[8] "Aspirin reduces the incidence and death rate of cardiovascular and cerebrovascular events and is nowadays the cornerstone of any secondary prevention in vascular diseases".[8] Newer anti-aggregatory agents such as ticlopidine, clopidogrel or IIb/IIIa-blockers are developed. We use them with aspirin and their place has yet to be defined.[8] It showed improvement in endothelial dysfunction. [8]

Role of aspirin in the present pandemics

Aspirin has both anti-inflammatory and antithrombotic effects.[1,9,10] In addition, a significant aspirin mediated antiviral activity against DNA and RNA viruses, including different human corona viruses, are documented.[1,11] Using aspirin in patients with different infections reduced thrombosis-inflammation and lower rates of clinical complications including hospital mortality.[12,13] In order to test this hypothesis we checked whether persons already on blood thinners had any benefits like low severity of infection, less hospitalization and faster recovery from the corona disease in our area. We interviewed the medical officer in charge of COVID care center in Boisar, a small industrialized town near Mumbai, and who has treated many thousands of patients in this town. According to him, "many patients were poor and did not know the medicines they were already taking". Therefore, a proper data was not available from the general hospital. Mathew S. P., the chief medical officer of Ashokone.com, a private hospital catering to middle-and upper middle class in a suburb of Mumbai, said that cardiac patients who were on blood thinners like ticlopidine, clopidogrel or IIb/IIIa-blockers generally did well during infection and the incidences of micro clotting were not noticed in the patients (personal communication, April 16, 2021). Our limited observations of few cases of persons on blood thinners because of cardiac disease or who had undergone angioplasty did not have any serious infection till now. We do not know whether they had asymptomatic infection, but they observed no serious complications. Above observations support the hypothesis of a beneficial role of blood thinners like aspirin in preventing blood clots in corona virus-infected individuals.[12-15] This shows that the blood thinners turned out to be a "blessing in disguise", for cardiac patients in the present pandemic.

Why aspirin is not a over the counter (OTC) drug in India?

On the basis of the information given above, the immediate action that can follow is to recommend a low level of aspirin intake in the general population. But they do not sell aspirin over the counter without medical prescription in certain parts of India. This is because of sporadic incidences of dengue fever in the population and misuse of aspirin may increase the bleeding in dengue patients. We can take aspirin only under medical supervision.

Alternative sources of aspirin

Against such a backdrop, there is a need to find out alternative sources of substances which act like aspirin and yet a component in the everyday diet. There are foods with the high aspirin content, and it may supply aspirin required through the diet. "Salicylic acid, the main active ingredient in aspirin, is "ubiquitously present in fruits and vegetables," the highest concentrations are found in herbs and spices'.[16] This drew our attention to study the role of salicylates in human nutrition.

Role of salicylates in human nutrition.

Epidemiological studies show reduced mortality from cardiovascular disease, cancer, and other diseases with a high consumption of fruit and vegetables. They focused the attention on antioxidants, B group vitamins, minerals, and fibre in the diet.[17] Recent evidences shows that increased intake of salicylates may be another benefit of fruit and vegetable consumption.[17,18] Some researchers now consider it as Vitamin 'S'.[16] Deficiency of salicylate is detrimental and" long-term use of a low salicylic in 1500 kcal diet poses the greatest threat of nutrient deficiencies".[19] Thus, salicylates are important in human diet.

Salicylates in foods

The information on salicylate content in food is very helpful for nutritionists and dieticians in recommending low salicylates or high-salicylates diets The analysis of salicylates content in 112 products available in European market showed that its content ranged from 0 to 1675.79 (μg/100 g).[20] The most comprehensive set of data on food salicylates show that its content in vegetables varied from 0 to 6 mg salicylate per 100 gm food while some herbs and spices contain very high amounts per 100 gm, e.g., curry powder, paprika, thyme, garam masala, and rosemary. Among beverages, tea provides substantial amounts of salicylate while cereals, meat, fish, and dairy products contain none or negligible amounts.[21]

Salicylate consumption in different populations

The published estimates of daily salicylic acid intake vary ranging from 0.4 to 200 mg/day.[22] Salicylate intake for Scottish population estimated with application of a validated food frequency questionnaire was 4.42 (range 2.90-6.27) and 3.16 (2.35-4.89) mg/day for males and females, respectively.[23] In another study involving adult Polish population reported salicylate intake to be 5.82 mg/week vs. 3.13 mg/week for omnivores The omnivores consumed parsley, garlic, dill, marjoram and basil, while vegans had garlic, parsley, ginger, basil and dill. The vegans consumed significantly more total salicylates than omnivores.[24] A study on the salicylate content of a variety of commonly used spices in India and its bioavailability reported that salicylic acid levels in the serum from rural Indians were significantly (median almost 3-fold) higher than values previously measured in Western vegetarians. This phytochemical may contribute to the low cancer incidence in rural India.[25]

Salicylate in Indian foods

Typical Indian diet comprises cereals and pulses, and the salicylate content is very low.[21,26] Though World Health Organization (WHO) recommends 400g of fruits and vegetables, many Indians reduce the consumption primarily because of economic reasons. The salicylate content in most vegetables is comparatively low.[21] However, Indian spices and herbs are rich sources of salicylates.[24]

Using spices and herbs varies in different regions of India. Tea has high levels of salicylates.[21] Its preparation is different in many parts of India. In northern India, they boil tea leaves and they squeeze out the leaves during straining. In Kerala, they do not squeeze tea leaves out during staining. In Northern India, they add spices and ginger while preparing the tea, while in South India, they seldom use spices with tea. Thus, intake of salicylate varies with cuisine and the method of preparation. Against such a backdrop, we felt there is a need to prepare a herbal mix comprising different spices containing a high amount of salicylates, which can supplement with a drink or food consumed all over the country, especially during this pandemic time. In our study, we found people use butter milk throughout India, especially as a drink during summer months. Thus, we designed and planned a herbal mix comprising some herbs and spices, already known for its salicylate content and which does not cause any unpleasant taste to people while taking the drink.

METHODS

All ingredients as mentioned in (Table 1) were mixed in the mixer and grinded with little water to make paste. Then 100 ml butter milk was added to it and blended for few minutes. 400 ml of butter milk was mixed and served. In case those who do not want to take along with buttermilk, they can mix the powders of above ingredients and take it with peanut powder as chutney. Peanut has a high amount of salicylates.[21]

Table 1: Composition of matily herbal and spices mix.

Ingredients	Quantity
Curry leaves	5 nos.
Mint leaves	3 nos
Ginger	2.5 cms long
Green chilly	1 small one
OR	
Red chilli powder	2.5g (half teaspoon)
Turmeric powder	1.g (quarter teaspoon)
Powdered cumin seeds	1g (quarter teaspoon)
Salt	To taste

RESULTS

The present pandemic is a war against corona virus. As in any military operations, hide and fight principles work. We have been hiding from corona by implementing lockdown to develop vaccine against it and our nation has equipped the individuals to develop antibodies in their body through vaccination. Ultimately, every citizen in India has to face an inactivated (dead) corona virus or mRNA that produces corona spike proteins in their body (mRNA vaccine like COVID shield) or face the actual corona infection. The infection may be symptomatic or asymptomatic in the individual, but can cause clotting of blood in the organs of body, leading to complications. Aspirin (ASA) prevents blood clotting in the patients. In a general population, persons with no symptoms may develop blood clotting and can be fatal. In such a situation, dietary intake of salicylates may help to reduce chances of blood clotting in the individuals. Adequate dietary salicylates help individuals to fight corona virus complications, in case of corona infection. We cannot go on hiding from corona through lockdowns, and we should help our citizens to equip themselves to fight corona through lifestyle and diet. Salicylates in diet equip the individuals to overcome complications connected with corona infection and a vegan diet provide higher amount of salicylates to the body. Thus, in this pandemic, individuals should opt for a vegan diet.

DISCUSSION

Indian herbs and spices are rich in salicylates. However, the consumption of salicylates can vary in the population depending on the cuisine and method of preparation of dish. Therefore, we felt there was a need for developing a herbal mix which can provide adequate amount of salicylates. Thus a herbal mix developed and mixed with buttermilk may supplement salicylates in the population. An alternative method is to mix with any food and consume it. Salicylates in the food seem to help people overcome the infection. The observed low death rate of covid patients in India might be because of salicylate

consumption in the Indian diet.[2] In another report suggested the role of spices to treat COVID-19 through suppression of inflammation-linked cytokine storm.[27] Previously we reported a study on Matily herbal drink and proposed it as a prophylactic and treatment for COVID-19.[28,29,30] We feel the salicylates in the ingredients of Matily herbal drink may have contributed in overcoming the virus like the action of aspirin on various viruses.[1]

CONCLUSION

Indian cuisine includes spices and herbs and they are rich in salicylates. Salicylates act like aspirin and it may have contributed to the survival rate of COVID patients in India. The vegan diet is rich in salicylates and the consumption of salicylates in the population can vary depending on the cuisine. Hence matily herbal and spices mixture was designed to supplement adequate amount of salicylates in Indian population. The author wants to lift up the spirit of Indian citizens and remind a profound statement made 30 years ago by Dr. M. S. Valiathan, the director of Sree Chitra Tirunal institute of medical sciences and technology, in a casual meeting of mine along with two foreign nuclear scientists, “we Indians are like worms and we will wriggle through any situations”. Again, I want to quote Robert H. Schuller who said, “tough times never last, tough people do”. With the help of almighty God let us make ourselves tough at individual, family and national level through our lifestyle and diet, to defeat corona virus and start normal life.

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REFERENCES

1. Bianconi V, Violi F, Fallarino F, Pignatelli P, Sahebkar A, Pirro M. Is acetylsalicylic acid a safe and potentially useful choice for adult patients with COVID-19 ? Drugs. 2020:80:1383-96.
2. Eapen JT. “Let food be thy medicine”. Could Indian diet contribute to the survival rate of COVID19 patients in India?. Intl J Dent Med Sci Res. 2021;3: 568-74
3. Liu Q, Huang N, Li A, Zhou Y, Liang L, Song X, Yang Z, Zhou X. Effect of low-dose aspirin on mortality and viral duration of the hospitalized adults with COVID-19. Medicine. 2021;100:45-52.
4. Rees V. Aspirin could protect patients from severe COVID 19 complications. Available at: https://www.europeanpharmaceuticalreview.com/news/131047/aspirin-could-protect-patients-from-severe-covid-19-complications/. Aaccessed on 20 April 2021.
5. Lévesque H, Lafont O. Aspirin throughout the ages: a historical review. La Revue de medecine interne. 2000;21:8s-17.
6. Miner J, Hoffhines A. The discovery of aspirin's antithrombotic effects. Texas Heart Institute J. 2007; 34:179-86.
7. Richmond C. Aspirin. BMJ. 2004;329(7479):1406-10.
8. Reinhart WH. Aspirin. Therapeutische Umschau. Revue therapeutique. 1999;56:713-7.
9. Schrör K. Aspirin and platelets: the antiplatelet action of aspirin and its role in thrombosis treatment and prophylaxis. Seminars in thrombosis and hemostasis. 1997;23:349-56.
10. Undas A, Brummel-Ziedins K E, Mann KG. Antithrombotic properties of aspirin and resistance to aspirin: beyond strictly antiplatelet actions. Blood. 2007;109:2285-92.
11. Glatthaar-Saalmüller B, Mair KH, Saalmüller A. Antiviral activity of aspirin against RNA viruses of the respiratory tract-an in vitro study. Influenza Other Resp Viruses. 2017;11:85-92.
12. Chow JH, Khanna AK, Kethireddy S, Yamane D, Levine A, Jackson AM, et al. Aspirin use is associated with decreased mechanical ventilation, icu admission, and in-hospital mortality in hospitalized patients with COVID-19. Anesthesia Analgesia. 2020; 45:52-9.
13. Protective effect of aspirin on COVID-19 patients (PEAC). Available at: https://clinicaltrials.gov/ct2/show/NCT04365309. Accessed on 21st April 2021.
14. Liu Q, Huang Na, Li A, Zhou Y, Liang L, Song X, et al. Effect of low-dose aspirin on mortality and viral duration of the hospitalized adults with COVID-19. Medicine. 2021;100:24544.
15. Mohamed-Hussein A, Aly K, Ibrahim M. Should aspirin be used for prophylaxis of COVID-19-induced coagulopathy?. Med Hypotheses. 2020;144:109975.
16. Greger M. The foods with the higest aspirin content. Available at: https://nutritionfacts.org/2019/12/26/the-foods-with-the-highest-aspirin-content/. Accessed on 20 April 2021.
17. Aune D. Plant foods, antioxidant biomarkers, and the risk of cardiovascular disease, cancer, and mortality: a review of the evidence. Adv Nutr. 2019;10:S404-21.
18. Hare LG, Woodside JV, Young IS. Dietary salicylates. J Clin Pathol. 2003;56:649-50.
19. Szczuko M, Romaniuk R. Low salicylate diet and the possibility of nutrient deficiency. Pomeranian J life Sci. 2016;62:18-24.
20. Kęszycka P K, Szkop M, Gajewska D. Overall content of salicylic acid and salicylates in food available on the european market. J Agri Food Chem. 2017; 65:11085-91.
21. Swain AR, Dutton SP, Truswell AS. Salicylates in foods. J Am Diet Assoc. 1985;85:950-60.

22. Duthie GG, Wood AD. Natural salicylates: foods, functions and disease prevention. Food and Function. 2021;2:515-20.
23. Wood A, Baxter G, Thies F, Kyle J, Duthie G. A systematic review of salicylates in foods: estimated daily intake of a Scottish population. Mol Nutr Food Res. 2011;55: S7-14.
24. Gajewska D, Kęszycka PK, Sandzewicz M, Kozłowski P,Myszkowska-Ryciak J. Intake of dietary salicylates from herbs and spices among adult polish omnivores and vegans. Nutrients. 2020;12:2727.
25. Paterson JR, Srivastava R, Baxter GJ, Graham AB, Lawrence JR. Salicylic acid content of spices and its implications. J Agri Food Chem. 2006;54:2891-96.
26. Salicylate in Foods. Available at: https://www.foodcanmakeyouill.co.uk/salicylate-in-food.html. Accessed on 22 April 2021.
27. Kunnumakkara AB, Rana V, Parama D, Banik K, Girisa S, Sahu H, et al. COVID-19, cytokines, inflammation, and spices: How are they related?. Life Sci. 2021;119201.
28. Eapen JT. Matily herbal drink may reduce oxidative stress, hyperglycemia, and hyperlipidemia and increases immunity - case study reports. J Med Res. 2020;8:21-4.
29. Eapen JT. Managing Shingles (HZ) in elderly with topical application of acyclovir 5 mg and increasing immunity with matily herbal drink - a case study. Global J Med Res. 2020;45:80-9.
30. Eapen J. Matily herbal drink could be a prophylaxis and therapy against COVID-19: a possibility. Int J Res Med Sci. 2021;9:651-4.

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