RATIONALE BEHIND THE COMPARISON OF KABA SURA\textit{M} AND OTHER SURA\textit{MS} WITH CORONAVIRUS DISEASE AND OTHER VIRAL FEVERS – A LITERATURE REVIEW

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Received: 22 July 2021, Revised and Accepted: 26 August 2021

ABSTRACT

Objectives: This article intended to discuss about the rationale behind the comparison of coronavirus disease (COVID 19) and other viral fevers signs and symptoms with “Kaba Sura\textit{m}” and others Sura\textit{ms} signs and symptoms with available source of Siddha literatures.

Materials and Methods: Research Type: Systemic review. Design: Literature review will be done by collection of available text references from authenticated Siddha texts. Reference Authenticated Siddha Texts: 1. Yuyumuni Vaithya Sinthamani, 2. Sura Yugagam, 3. Theran Karaisal, 4. Theran Yamaga Venba, and 5. Sura Venba.

Conclusion: Based on inference derived from Results and Discussion, we came to conclude that signs and symptoms of various viral fevers (COVID-19, dengue, chikungunya, and swine flu) are most commonly matched with the signs and symptoms of Kaba Sura\textit{m}, Pitta Sura\textit{m}, Vatha Sura\textit{m}, and Kaba Pitta Sura\textit{m} which are already mentioned in Siddha authenticated texts.

Keywords: Chikungunya, Coronavirus disease, Dengue, Siddha, Sura\textit{ms}, Swine Flu.

INTRODUCTION

Siddha system is one of the traditional medical systems of India which is most popular in Southern Peninsula of India [1-3]. Coronavirus disease (COVID-19) is one of the viral infections which is a dangerous infection producing sudden respiratory arrest and leads maximum up to death. This infection is caused by a variety of RNA group of virus, that is, severe acute respiratory syndrome-CoV-2. Like COVID-19, chikungunya, dengue, and swine flu are the viral infections causing casualties as pandemic in the past years throughout the world [4]. These are the major threatening viral fevers to the world community not only in developing countries but also in developed countries. The similarity between all these viruses is all four belong to RNA group of viruses [5]. Health-care communities are trying to find out the apt treatment for these viral infections. Role of traditional medicines throughout the world is notable in the management of all these fevers. Specifically, Indian traditional systems (AYUSH) are contributing lot to community in treatment/prophylactic aspects of all these fevers. Siddha system of medicine also playing an essential role in treatment and management aspects of these viral fevers. In general, “fever” is mentioned in Siddha Text as “Suram,” “Kaichal,” “Veppu,” “Kanai,” and “Vedhuppu.” [6] There are 64 types of fever classified in Siddha texts based on causative factors, signs and symptoms, and imbalance of Thirithodam (three humor Vatha-Pitha-Kapham) [7]. This article intended to discuss about the rationale behind the comparison of COVID-19 and other viral fevers signs and symptoms with “Kaba Sura\textit{m}” and others Sura\textit{ms} signs and symptoms with available source of Siddha literatures.

Siddha system and pandemics/epidemics

In Siddha system, epidemics/pandemics are mentioned as “Uzhi Noi” or “Kothari Noi” [8]. In general, they are classified under “Kollai Noikal” which are most commonly occurred the time of “Ayana Santhi” [9] months (means end months of Uthara Ayamam and Thatchana Ayamam), fall on Adi and Margsyachi month in Tamil Calendar [10]. It is believed that in those days, immunity of human being will be low based on Thirithodo Theory [11,12].

In this context, the signs and symptoms mentioned under “Kaba Sura\textit{m}” and some other Sura\textit{ms} can be compared with the signs and symptoms of the COVID-19 and other viral fevers [6,12].

Viral fevers comparison with various types of Suram as per Siddha literatures

| S. No. | Name of the viral fevers | Suitable type of Suram as per Siddha literatures |
|--------|---------------------------|-----------------------------------------------|
| 1      | COVID-19                   | Kaba Sura\textit{m}                           |
| 2      | Dengue                    | Pitta Sura\textit{m}                         |
| 3      | Chikungunya               | Vatha Sura\textit{m}                         |
| 4      | Swine Flu                 | Kaba Pitta Sura\textit{m}                    |

MATERIALS AND METHODS

It is a systemic review done by collection of available text references from authenticated Siddha texts. The following authenticated texts were taken as source of references.

1. Yuyumuni Vaithya Sinthamani [13].
2. Theran Karaisal [14].
3. Theran Yamaga Venba [15].

RESULTS AND DISCUSSION

The following Table 1 comparing with the signs and symptoms of COVID-19 declared by the WHO [16] with signs and Symptoms of Kaba Sura\textit{m} mentioned various Siddha authenticated literatures [6,7].

Based on above signs and symptoms of COVID-19 classified by the WHO with Kapha Sura\textit{m} which are mentioned in Siddha literatures, it is found that 95% (excluding headache) of major and 90% (excluding loss of smell and red eyes) of minor signs and symptoms matched with the WHO classification. Overall, 14 out of 17 signs and symptoms classified by the WHO classification of COVID-19 matched with Kapha Sura\textit{m} which are mentioned in Siddha authenticated literature.

The following Table 2 comparing with the signs and symptoms of dengue declared by the WHO [17] with signs and symptoms of Pitta Sura\textit{m} mentioned in various Siddha authenticated literatures [4,5].
Table 1: COVID-19 versus Kaba Suram

| S. No. | WHO classified signs and symptoms | Siddha terminology | Siddha quotes mentioned in Siddha texts with reference |
|-------|----------------------------------|-------------------|-----------------------------------------------------|
| 1     | Fever                            | Suram, Kaichal, Veppu | “Aratha Suram” – அராதா சுரம், “Veyasuram – வேயசா சுரம்,” “uramve thumbal” – உரம்வே சும்பால், “analelumbal” – அணலெலும்பால், “Mikakkkayum” – மிகக்கேற்றம், “mudal veppagi” – முதல் வேப்பாகியில், “Sarantaan Kaanit” – சரண்டான் கானிட், “Iyadavu” – ஒயத்வு. | |
| 2     | Cough                            | Irumal           | “Moor Thondai Nokum” – மூர் தொண்டை நோகும், “Sinhba mitaru nonthu” – | |
| 3     | Fatigue/tiredness                | Balaseenam, Asathi, Kalaippu | “Masathyum” – மசதூயம் | |
| 4     | Loss of taste/loss of smell      | Arul, Suvaiyinmai | “Naaku murumna uurusi yillai” – நாகு மூரும்நா உறுசி யிலை, “Uraliyil” – உறலியில் | |
| 5     | Sore throat                      | Thondaikattu      | “Moar Thondai Nokum” – மூர் தொண்டை நோகும், “Sinthba mitaru nonthu” – | |
| 6     | Aches and pain                   | Vali, Ulaiyu      | “Mulari” – முளரி, “Udamba konthazhaturam” – உடம்ப கொங்டசார்த்திரம் | |
| 7     | Shortness of breathing/ difficulty in breathing | Illaiippu, Meel Moochu | “Ayaas mersu vaasam” – அய்யசும் வாசம், “Moocchiathal” – மூச்சிளைத்தால் | |
| 8     | Mental confusion                 | Manakulappam, Thayakam | “Thiyakkamural” – தியாக்காமுரல், “Manathuvolam” – மணநதுவோலம் | |
| 9     | Diarrhea                         | Kalichal, Athisaram | “Kurukutha lathisara” – குருகுத்தா லிதிசாரா, “mudalil malasallthean nurai” – முதலில் மலசால்தில்லையான், “Yaviru mudan kalyi” – யவிரு முடன் கல்யியுள்ளார் | |
| 10    | Discoloration of body parts (face, fingers, and toes) | Veluuuup, Paando | “Ayar Noyanmanee Yanuyi nirie” – அயர் நோயன்மணேய் யனூயி நியீரியுடன் | |

(Headache, loss of smell, and red eyes are the symptoms which are not matching with Siddha literature)

Table 2: Dengue versus Pitha Suram

| S. No. | WHO classified signs and symptoms | Equivalent Siddha terminology | Siddha quotes mentioned in Siddha texts with reference |
|-------|----------------------------------|-----------------------------|-----------------------------------------------------|
| 1     | High fever                       | Suram, Kaichal, Veppu       | “Itavithathar Suram” – இத்தவித்தாரா சுரம் | |
| 2     | Severe headache                  | Thalai Sutral, Thalai Kanathal | “Thalai Sutral” – தலை சுற்றல் | |
| 3     | Rapid breathing                  | Ilaiippu                    | “Ilaiippu” – இலைப்பு, “Mel Moochu iraithal” – மெல் மூச்சு இறைத்தால் | |
| 4     | Headache                         | Thalai Vali, Thalai Kanathal, Thalai Noi | “Thalai noi” – தலை நோய், “Thalai Kanathal” – தலை கானடால், “Thalai kaitiuthu kaitiuthu Nothai” – தலை கைதிதும் கைதிதும் நோத் | |
| 5     | Retro-orbital pain and conjunctivitis | Kan Vali and Kan Sivathal | “Kan Sivathu Valithal” – கன் சிவது வாய்தல், “Kan Sivathu Valithal” – கன் சிவது வாய்தல் | |
| 6     | Nausea                           | Velokalam                   | “Ookkalam” – ஒூ்க்காலம் | |
| 7     | Vomiting                         | Vanthi, Sathi               | “Vanthi” – வான்தி | |
| 8     | Diarrhea                         | Kalichal, Athisaram         | “Yaviru Kalithal” – யவிரு களிதல் | |
| 9     | Chillies                         | kulir                       | “Udal Nadumkum” – உதால் நடும்கும், “Udal kulirchi” – உதால் குளிர்சின், “Udal Punnathal” – உதால் புன்னாதல் | |
| 10    | Skin rashes                      | Thinaivu, Thimir            | “Udal Neruppu Pol Ethral” – உதால் நெருப்பு பொல்யூத்ரல், “Udal Punnathal” – உதால் புன்னாதல் | |
| 11    | Severe abdominal pain            | Vayiru Vali                 | “Vayiroolu Ulithal” – யவிருவோலு உழில்தல் | |
| 12    | Insomnia                         | Thookaminnai                | “Thookaminnai – தூக்கமின்னை” | |
| 13    | Fatigue                          | kalaiippu                  | “Kalaippu” – கலைப்பு, “Udal Vannai Kuraithal” – உதால் வான்நாய் குராயிதல் | |
| 14    | Anxiety                          | Anna veruppu, Pasiyinmai    | Anna veruppu – அனா வெறுப்பு | |
| 15    | Restlessness and other psychological problems | Mana Ulaichal and Maanithinmai | “Mirantu Parlath” – மிராண்டு பால்தாழ், “Mananial maruthal” – மணணியால் மாருதால், “Mansakalakkam” – மாண்ணாக்காம், “Ullam Kothithal” – உல்லம் கோதிதல், Vai Pithathal – வைய் பிதாதால், “Puthi Mayankal” – புத்தி மயாங்கல், “Thavithal” – தவிட்டால் | |

(Joint pain or muscle pain and blood vomiting are the symptoms which are not matching with Siddha literature)
Based on above signs and symptoms of dengue fever classified by the WHO with signs and symptoms of Pitha Suram which are mentioned in Siddha literatures, It is found that 95% (joint or muscle pain) of major signs and symptoms and 95% (excluding blood vomit) of minor signs and symptoms matched with the WHO classification. Overall, 15 out of 17 signs and symptoms classified by the WHO classification of dengue fever matched with signs and symptoms of Pitha Suram which are mentioned in Siddha authenticated literature.

The following Table 3 comparing with the signs and symptoms of chikungunya declared by the WHO [18] with signs and symptoms of Vatha Suram mentioned various Siddha authenticated literatures [4,5].

Based on above signs and symptoms of chikungunya classified by the WHO with signs and symptoms of Vatha Suram which are mentioned in Siddha literatures, it is found that 95% (excluding oral ulcers) of major signs and symptoms and 95% (excluding swelling) of minor signs and symptoms matched with the WHO classification. Overall, 12 out of 14 signs and symptoms classified by the WHO classification of chikungunya matched with signs and symptoms of Vatha Suram which are mentioned in Siddha authenticated literature.

The following Table 4 comparing with the signs and symptoms of swine flu declared by WHO [19] with signs and symptoms of Kaba Pitha Suram mentioned various Siddha authenticated literatures [4,5].

Based on above signs and symptoms of swine flu classified by the WHO with signs and symptoms of Kapha Pitha Suram which are mentioned in Siddha literatures, it is found that 100% of major signs and symptoms matched with the WHO classification and 100% of minor signs and symptoms matched with the WHO classification. Overall, 13 out of 13 signs and symptoms classified by the WHO classification of swine flu matched with signs and symptoms of Kapha Pitha Suram which are mentioned in Siddha authenticated literature.

### Table 3: Chikungunya versus Vatha Suram

| S. No. | WHO classified signs and symptoms | Equivalent Siddha terminology | Siddha quotes mentioned in Siddha texts with reference |
|--------|----------------------------------|-----------------------------|------------------------------------------------------|
| 1      | Fever                            | Suram, Kaichal, Veppu       | "Suramathu Makanthu Kayum" – சுரமாத்து மகான்து காயம் |
| 2      | Arthralgia                        | Mootu Vali, Santhu Vali, Kee Yaval | "Kai kal Kaduppu" – கைகல் கதுப்பு, "Poruthu thorum mulaivakum" – பொருத்துறூங் முளைவகும் |
|        |                                  |                             | "Kai kaalak valithal" – கைகாலக் விளைதல், "Parinthath veluthu veenkai pothal" – பாரின்னது வெண்கை போதால் |
| 3      | Backache                          | Idippulavu                  | "Vada kuthinthu Nothathal" – வாடா குதின்னு நோததால், "Vada kuthinthu kuthithal Nothail" – வாடா குதின்னு குதின்னு நோததால் |
| 4      | Headache                          | Thalai Vali, Thalai Kanathal, Thalai Noi | "Thalai nai" – தைலோய் நைய், "Thalai Kanathal" – தைலோய் காணாதல், "Thalai kuthinthu kuthithal Nothail" – தைலோய் குதின்னு குதின்னு நோததால் |
| 5      | Retro - Orbital Pain              | Kan Vali                    | "Kan Vali" – கண் வலி |
| 6      | Vomiting                          | Vanthi, Velokalam, Sathi    | "Vanthi" – வாந்திய் |
| 7      | Diarrhea                          | Kalichal, Athisaram         | "Kalithal" – களித்தல் |
| 8      | Chills                            | Kulir                       | "Udal Kulir" – உடல் குளிர் |
| 9      | Skin problems                    | Thol kurigunankal           | 1. "Thol surunkum" – உடல் சூருங்கும், 2. "Udal Muluvathum Karuvathai" – உடல் முழுவதும் கருவாது வாதாயிரும் |
|        |                                  |                             | 3. Hair rashes |

(Stomatitis and swelling are the symptoms which are not matching with Siddha literature)

### Table 4: Swine flu versus Kaba Pitha Suram

| S. No. | WHO classified signs and symptoms | Equivalent Siddha terminology | Siddha quotes mentioned in Siddha texts with reference |
|--------|----------------------------------|-----------------------------|------------------------------------------------------|
| 1      | Fever                            | Suram, Kaichal, Veppu       | "Vida suramathu Kayum" – வி஡ா சுரமாத்து காயம் |
| 2      | Vomiting                         | Vanthi, Velokalam, Sathi    | "Vithi Muppuk kabangai sathi" – விதிம் முப்புக் கபாங்கை சாதி, Karlai kolayikai Vanthi – கால்லை கோலையிக் காந்தியும், Vithi Vali karuppathu Valithal – விதியும் கருப்பக் கறுப்பக் காற்றல் |
| 3      | Rhinorrhea                        | Mooku neir pathal           | "Mooku Neer" – மூக்கு நீங்கு பத்தல் |
| 4      | Cough                             | Iramal                      | "Nenjerikuntu Thirumal uruthunakkum" – நெண்டேரிக்குத்து திருமல் உறுதுனாக்கம் |
| 5      | Dyspnea                           | Illappu, Moorcherithal      | "Mudukinduva sasva mundam" – முடுகின்னுவா சசவா முண்டம், "Mel Moocherithal" – மெல் மூச்செரித்தல் |
| 6      | Myalgia and arthralgia            | Thasai Vali and santhu Vali | "Vallikkunakaal Vitu varum" – வால்ளிக்குனகாக்கல் விது வரும், "Vithithi Malem Velukum" – விதியும் மலேம் வெளுகும் |
| 7      | Diarrhea                          | Kalichal, Athisaram         | "Kai kaalkal Valithai" – கைகாலக் கால்கல் விளைதல் |
| 8      | Nausea                            | Velokalam                   | "Veluppu Kalikad Kalithal" – வெலுப்புக் காலிகக் காலிதல் |
| 9      | Conjunctivitis                    | Kovambalam, Thalarnthum     | "Veluppu Kalikad Kalithal" – வெலுப்புக் காலிகக் காலிதல் |
| 10     | Fatigue and tiredness             | Asathi and soory            | "Vadikudalam mika vandral" – வாதிகுழந்தல் மிகா வந்த்ரல், "Udal Vadiyu manam Thalarnthum iruthal" – உடல் வாதியும் மனம் தாலார்தம் இறுதால் |
| 11     | Psychological disturbances        | Mana Ulaich                 | "Odi palakalam alurthukum" – ஒடிப் பல்காலம் அலுறுத்தூகும் |
| 12     | Sleeplessness and restlessness    | Urrakkaminmai and amaithiyinnmai | "Murathu Peso Mokkum" – முராதுப் பெஸோ மொக்கும், "Patukkai Porunathu" – பாதுக்கைப் பொருணாது |
CONCLUSION

Based on inference derived from results and discussion, we came to conclude that signs and symptoms of various viral fevers (COVID-19, dengue, chikungunya, and swine flu) are most commonly matched with the signs and symptoms of Kaba Suram, Pitha Suram, Vatha Suram, and Kaba Pitha Suram which are already mentioned in Siddhar authenticated texts.

Like classification of 64 fevers, separate treatment of regimen for individual fevers also mentioned in Siddhar texts. Hence, based on this comparison, the medicines which are mentioned for the Kaba suram, Pitha suram, Vatha suram, and Kaba Pitha Suram will useful in the management of COVID-19, dengue, chikungunya, and swine flu.

Note: Various RCT with Kaba Sura Kudineer – initiated and carried out by CCRS for the management of COVID 19 under the guidance of Min. of AYUSH, Govt. of India. [Multicentric Prophylactic Population Study, Stanley Medical College Siddha Study [20], Theni Medical College Siddha Study, SRM Siddha Study, Vyasarbadi Study, and GIMS Noida Siddha Study [21]].

AUTHORS’ CONTRIBUTIONS

MR conceived and developed the concept of this paper. MR also wrote and drafted the whole manuscript. KK helped in the finalization of the manuscript.

CONFLICTS OF INTEREST

Authors declared that there are no conflicts of interest in this stage.

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