

**COVID – 19**  
**AND**  
**AYURVEDA**  
**RASAYANA**



**ALVA'S**

EDUCATION FOUNDATION(R.), MOODUBIDIRE.

*Moulding a better tomorrow*

E- Book from Alva's Jnananjana

**ALVA'S AYURVEDA MEDICAL COLLEGE**

**VIDYAGIRI MOODBIDRI**

**A UNIT OF ALVA'S EDUCATION FOUNDATION**

**Covid -19**  
**and**  
**Ayurveda Rasayana**  
(E- Book from Alva's Jnananjana )

**Chief Editor**  
**Dr Zenica D'Souza**

and

**Executive Editor**  
**Dr M S Krishnamurthy**

**A Publication from Alva's Jnananjana-Alva's Ayurveda Medical  
College, Vidyagiri, Moodbidri**

**NOTE: The Rights of the articles are Reserved by the respective authors**

**SEPTEMBER 2020**

## Contents

Sl No	Content	Scholar	Pg No
1	Message	Hon.Dr M Mohan Alva, Chairman,AEF® Moodbidri	i
2	Message	Hon.Vd Vinod Kumar, Member, Board of Governors, CCIM	ii
3	Prologue	Editor in Chief, Prof ( Dr ) Zenica D'Souza	iii
4	Acknowledgements	Executive Editor, Prof (Dr) M S Krishnamurthy	iv
5	<b>Ayurvedic Perspective Draft On Covid- 19</b> (Elaboration on the presentation during Webinar on Covid 19, 5 May 2020, AIIA, New Delhi)	Prof (Dr) Srinivas Hejamadi Acharya	1
6	<b>Covid-19 In Children – A Review</b>	Prof (Dr) Rajagopala S	11
7	<b>Covid-19: Safe And Effective Herbal Formulations For Immuno- modulation</b>	Prof (Dr) Sathyanarayana B	20
8	<b>Ayurvedic wisdom of immunity and its relevance to Covid-19</b>	Prof (Dr) Ravishankar Shenoy	26

प्रज्ञानं ब्रह्म

## Message

We are in the delicate and crucial situation of affliction of pandemic health issue Covid 19. Any crisis will never remain permanently among us. It is the nature's bell to create awareness regarding the socio-environmental care and concern what we should have throughout irrespective of time and space. The moral and ethical values of Ancient Indian heritage have significant role in prevention of this malady of Carona virus.

Our state and Central Governments and few of the Non-Governmental organizations with the assistance and co-operation of Private sectors are doing great job in the control and cure of this deadly health issue. It has created sufficient awareness among the people about self and care of the others as well.

Our various Institutions coming under Alva's Education Foundation ® too discharging its abilities in various capacities so as to create awareness for prevention and to suggest the effective modalities to remain immuned.

'Covid 19 and Ayurveda Rasayana'- a unique Webinar conducted by the Department of Rasashastra and Bhaishajya kalpana, Alva's Ayurveda Medical College through online platform has opened up so many minds to tune in this respect; also it has helped to educate and take necessary precautions in day to day life and profession. As a continuation of this, the subject contents of Covid 19 and immunological applications through Ayurveda are now compiled from the experts of the country and placed before you. I am very sure that such a work will fulfill the need of the researchers, Ayurvedists, practitioners and UG-PG students at large.

I wish that such endeavors will enlighten the future scholars of Ayurveda to move ahead and open new avenues in the treatment of such diseases.

My best wishes towards each one of the contributing scholars of ayurveda, faculty of Alva's Ayurveda Medical College, PG and UG scholars of Ayurveda and you readers.

Date: 25/6/2020

Dr M Mohan Alva

Chairman, Alva's Education Foundation®

Moodbidri, Karnataka

## MESSAGE

I am pleased to convey my best wishes to the Editorial team and scholars who have put their best efforts in bringing out an useful E -Book – ‘Covid 19 and Ayurveda Rasayana’. Various inputs with different perspectives in the management of this infectious disease through Ayurveda system of medicine is explored with good rationality in this work. I wish this book become a handbook to gain detail knowledge about the understanding of this infectious disease and thereby possible measures to prevent and even cure for this disease.

It is indeed essential to explore and bring out the essence of this universal wisdom and prove to the western scientific world that, though Ayurveda is an ancient system of medicine, it is still relevant and useful to the public at large with its unparalleled scientific wisdom, rooted in immortal philosophy and eternal conceptual foundation having universal application, continues to serve not only humankind but Nature and its inhabitants as a whole even today. Covid-19, considered being a pandemic disease, spreading across the world need to be effectively prevented, managed and cured. The relevance of Ayurveda for this pandemic mainly lies in its role, application and utility for effectively strengthening the immune system in particular. We need to learn and practice the effective modalities to prevent and cure this deadly disease based on the time tested, evidence based concepts of Ayurveda.

The task taken by Alva’s Ayurveda Medical College, Moodabidire, Karnataka after a Webinar on ‘Covid- 19 and Ayurveda Rasayana’ is now taking the shape of E- Book, with the expertise view points by the experts in this field. Let the true essence of Ayurveda spread its wings and serve the whole world. Let this book be an useful compendium to all the academicians, researchers, clinicians and public at large.

*Dhanyavadah.*

**Vaidya Vinodkumar T.G.**

**Member, Board of Governors, CCIM**

Senior Scientist & Managing Editor, JTFP  
Ethnomedicine & Ethnopharmacology Division  
Jawaharlal Nehru Tropical Botanic Garden and Research Institute Palode, Thiruvananthapuram,  
Kerala, India  
Mobile Number: 91-9446486457  
E-mail: [vaidyavinodkumar@gmail.com](mailto:vaidyavinodkumar@gmail.com)

## PROLOGUE

It gives me a great pleasure to bring forth the first e-book ‘Alva’s Jnyananjana’ on the theme ‘Covid - 19 and Ayurveda Rasayana’. The scholarly articles in this book calls for an awareness on Covid - 19 and the ongoing need for disease prevention and treatment.

This edition of the e-book gives an overview about the Ayurvedic perspective of understanding the Pandemic Covid – 19; and the possible approach for managing the situation along with its co-existing complaints. Furthermore, the unique impact of the condition on the paediatric population and the possible role of Ayurveda to pave the way for an effective prevention, cure and rehabilitation for the paediatric population is emphasised. The two fundamental objectives of Ayurveda are ‘*Swasthasya Swaasthya Rakshana and Aturasya Vikara Prashamana*’. The concept of ‘*Bala*’ is applied to the maintenance of health as well as disease. This concept is quiet wide and incorporates the aspects of *Vyadhikshamatva* or immunity. Charaka Samhita, an authentic text of Ayurveda describes epidemic management and defines immunity as the ability to prevent disease and arrest its progress to maintain homeostasis. The concept of *Trividha bala* is practically applicable and also useful in the present scenario of the global Pandemic, the Covid-19. Moving on to the aspects of treatment, there are a number of safe and effective herbal formulations in Ayurveda that act as immunomodulators which can be explained under the concept of *Rasayana*. *Rasayana* therapy may have a direct relevance to the prophylaxis and management of the existing Pandemic infection. There are a good number of single, polyherbal and compound formulations in Ayurveda which boost the immune system of an individual.

I appreciate the efforts of the executive editor and the editorial team of ‘Alva’s Jnyananjana’ in bringing out the first edition of this e-magazine on a theme which is the need of the hour. Hope the readers will appreciate the content in the forthcoming pages. I wish that the elaborations and articles in this e-book will add value in enriching the knowledge of readers and enhance the skills of practice of the dedicated practitioners of Ayurveda.

Dr Zenica D’Souza MD(Ayu)PhD

Place: Moodbidri

Date: 12/7/2020

**Principal, Alva’s Ayurveda Medical College, Moodbidri and  
Chief Editor, Alva’s Jnyananjana E Book- Covid -19 and Ayurveda Rasayana**

## Acknowledgements

- To Dr Mohan Alva, The Chairman, Alva's Education Foundation® Moodbidri and
- Vd Vinodkumar T G, Member, Board of Governors, CCIM for the appraisal and message
- To all the Scholars who have contributed the articles
- To the Dr Zenica D' Souza, Principal, Alva's Ayurveda Medical College, Vidyagiri, Moodbidri
- To the Vice Principal Dr Ravi Rao and Director, ATMA Research centre-Dr Subrahmanya Padyana
- To all the faculties of the Institution
- The RS& BK Departmental Colleagues-Dr Tarika S Bangera, Dr Nayana S Pai, Dr Soumya K R, Dr Amrutha O P and
- PG-PhD scholars of the Department of Rasashastra and Bhaishajya Kalpana.
- To Dr Mahesh T S, Professor and HOD, Dept. of Dravyaguna, Prasanna Ayurveda Medical College, Belthangady for Digitalization of the book.

Dr M S Krishnamurthy  
Executive Editor, Alva's Jnananjana E Book-  
Covid 19 and Ayurveda Rasayana,  
Alva's Ayurveda Medical College, Vidyagiri,  
Moodbidri, Karnataka  
[srimuliya@gmail.com](mailto:srimuliya@gmail.com)  
Mob:9448984445

# Ayurvedic Perspective Draft On Covid 19

(Elaboration on the presentation during Webinar on Covid 19, 5 May 2020, AIIA, New Delhi)

Prof (Dr) Srinivas Hejamadi Acharya M.D (Ayu), Ph.D Distinguished Professor, AIIA, New Delhi (under Ayush Ministry), Former(Rtd) Professor of Panchakarma, GAU, Jamnagar

## The background Concept – COVID

Corona family of virus were known to induce common cold (flu) everywhere. Though there are few many strains of these virus could induce serious illness like SARS with respiratory syndrome. However, corona virus disease (COVID) hitherto unknown till 2019, which almost unexpectedly become pandemic. Socalled COVID 19 is still bewildering with its range of symptomatology exhibited among the patients worldwide, believed to have fastest adoptability to conditions of human environment (mutagenic) and lack of vaccine or antiviral treatments.

Most of flu conditions with respiratory systems are often interpreted in Ayurveda hospitals as *Kaphaja* or *kaphavataja* illness mostly under *Jvara* than *Pratishyaya*. However, the prevailing clinical condition does not seems to be so simple a flu and thus calls for a rethinking from Ayurvedic percept whether you treat it by Ayurveda stand alone or not.

## Vaishamyata(unpredictable dispositions) of COVID need understanding

Initially seen as cough & cold, sore throat and pneumonia, the COVID 19 has started entering different clinical dimensions and these are varying among different geographical locations. Initially believed de-escalation with increase in environmental temperature above 25 degree centigrade, now become equally hopeless un abated in warm tropical areas too.

This is still not clearly understood whether it is due to fast adaptability of virus to human and environmental conditions.

Different COVID 19 sub strain identified in the viral labs now, which may infect concurrently or in a phasic manner one after another within individual and pandemic venture (example the COVID S strain and L strain found in Ahmedabad). Apparently, this may provide explanation on the varying clinical features noted among patients.

However, uncertainty remain at large that the many clinical features may continue in the patient's body even after the virus has left. Post viral biochemical & immunological load is believed to be one of the reasons (similar to the notion of *Jvarasya Ooshma*). Relapsing of the virus in the person once treated and discharged after test negative report (similar notion with Ayurveda as *Durbala - Punaravartaka*). Probably this is why finding a vaccine to COVID 19 has been difficult job, so far.



**Clinical Features:**

So far on observation (world wide learning), COVID 19 can manifest its features from mild to severe signs depending upon the individual conditions. The day of manifestation after infection varies from day 0 to 45 days. This is how the accountable quarantine days for suspected (exposed) persons has been never fixed. 3 days- 14 days- 28 days- 45 days any time on this juncture after exposure COVID can manifest its symptoms or the test for Covid can become positive!

Outstandingly, through the experiences gained in clinical observation ICMR (Ministry of Health, Govt of India) released a guideline that a hospitalized COVID patients is relieved of signs & symptoms in 10 days then that patient can be discharged even without conducting for a negative report. However, one week of home quarantine will be followed for that discharged patient. Two consecutive negative test reports are needed for those who have morbidity and have symptoms beyond 10 days of hospitalization.

These mild symptoms begin gradually:

- Aches and pains (shoulder and body ache)
- Cough
- Diarrhoea
- Fever
- Headache
- Nasal congestion
- Runny nose
- Shortness of breath
- Sore throat
- Tiredness
- Chills
- Repeated shaking with chills
- New loss of taste or smell (Anosmia)

These severe symptoms generally occur several days into the illness:

- Significant shortness of breath
- Low oxygen levels
- Abnormal blood tests
- Kidney failure
- Liver failure
- Pneumonia
- Hospitalization
- Neurological related symptoms
- Bleeding disorders – Kawasaki syndrome
- Mental symptoms – depression, confusion- aggression etc

**Vishama Jvara** – In Ayurved, type of Jvara characterising changing pattern in the onset (vishama aarambha) and changing pattern in incubation & spread (Vishama kriyakala anushanga). This definition fits well with existing information about COVID 19.

Dosha paka period among Covid patient group presumably varying. First week of Jvara wisely falls under Apakva dosha which will be followed by assisting Pachana and on 10<sup>th</sup> day onwards usually expected for Pakva dosha beginning. However, in Vishama jvara there would be Lina dosha and relapses Pakva dosha in Covid patients likely happens in 10 days ( usually they are discharged as Covid negative) or else it extends for observation up to 14 – 28 – 45 days. These are actually junctions of Dosha pakva and Jvara moksha.

Contagious nature of few illnesses particularly Jvara (fever) are well recognised in Ayurveda (Aupasargika). Endemic or Pandemic situations are duly recognised in ancient Samhita of Ayurveda like Charaka Samhita (at least 2000 BC). Such pandemics (Janapadodhvamsa) manifest on earth because of faulty life style of citizens, dishonour to seniors & nature and this is indeed manifestation of Adharma(anti dharma) on earth.

Susruta Samhita note that Agantuka Karana (extrinsic factors) induce Vishamajwara. Agantuka is known as four categorieses i.e., Abhighata, Abhichara, Abhishapa and Abhishanga. Abhishanga is through just contact ex. Bhutabhishanga. Chakrapani stated noxious organisms (Krimi) may be considered as Bhuta and thus the illness manifests due to Abhishanga.

If it is not too much to say about the report that pollution of the metro cities reduced drastically, the river water become clear and lakes in the cities like Bangalore lost their decades of froth. All these happened after the global lock down with the fear of covid 19. Good enough for sensible persons who can now feel what is 'Dharma'.

### **Impeding change in conventional therapeutic concepts**

Is Covid19 is compelling the great thinkers, scientists and pharmaceutical industries to rethink about the therapeutic approach to illnesses? This thoughtful reverberation is more in the west than in India.

Whether the theory of antimicrobes is going to wane in future or not, but at least the present scenario medical development indicates that the anti viral or anti biotics or anti fungalmay not be a 'stand alone' therapy in future medicine. Today the anti microbes probably cannot be prescribed with the same confidence as it were yesterday.

The paradigm shift we anticipate is the revisiting of host-parasite theory. Attention is being slowly emphasized on the topics like 'innate immunity'. Experimentation on plasma therapy for Covid 19 patient is on with hope, though sounds primitive at present. Being cautious on immunity reactions going on the body has taken front line. The plasma therapy wisely recommended to being in second week after the confirmed manifestation of COVID 19 in the patients.

Theory of soil (host) and seed (of illness) interaction 'Beejakshetranyaya' has due recognition in Ayurveda while explaining the pathophysiology and therapeutics. 'Balamhi alam nigrahaaya doshaanaam' -innate vitality (immunity) is everything in controlling the pathology of illness. Not to forget the note in Charaka Samhita under the Jvara treatment chapter, that the first week of fever (Nava Jvara) should not be intervened with strong medications (kashaya kashaya-astringent decoctions). In the second week administering Ghee to the patient shall work like boosting innate immunity of the patient suffering from Jvara. This can be understood in parallel with the plasma therapy why suitable in the second week of Covid patient taking into consideration the phase of immunological response in the human body. Ghee should not be used as therapy in first week of patient (Nava Jvara).

### **More Guidelines towards VishamaJvara vis-à-vis COVID 19:**

Absence of high fever in most of the cases dislodge the consideration from being Sannipatika. Intermittent exaggeration of symptoms like body ache, headache and fever among the COVID patient need the attention of physician. Which is very characteristic of

Vishama Jvara. Even in absence of measurable per thermometer hyperpyrexia, the presence fleeting complaints of dis-easiness & body ache obviously dispel into concept Jvara itself in Ayurveda.

Every experienced Vaidya accept the fact that Manah santapa and Shareera santapa is not always measurable through the thermometer. However, in India COVID 19 patients usually bear a body temperature of 99 – 100.5 degree Fahrenheit either continuously or intermittently.

### **Dosha predominance in COVID 19**

COVID seems to have a wide range of symptomatology from milder to sever forms as already noted above. The most commonest & widely manifesting feature of COVID 19 are cold, sore throat, cough with or without expectoration, headache, chest pain, body ache and fever. Indeed Vishama jvara manifest due to vitiation of all three Dosha as per the classical texts in Ayurveda.

Vyakta sthana at large is Urah (chest), Kantha (throat) and Nasa (nose). Therefore, there would be no doubt that Kapha sthana is the chief site of manifestation for this disease. The s

Kasa(cough), Pratishyaya(rhinitis) and Shvasavarodha(breathlessness) or Tamaka(Asthma) seems to be very common signs which indicates the Kapha dosha predominance in this form of illness. Whereas, the association of mild to sever body ache, shoulder pain, chest pain or headache etc. invariably point out towards the Vata dosha as coexisting predominance in the illness. Many persons do complain of dry nose or throat during the course illness, which again indicates Vatadosha being active. Therefore, it could be wise to consider this as KaphaVata dominating illness.

शीतको गौरवं तन्द्रा स्तैमित्यं पर्वणां च रुक् ॥

शिरोग्रहः प्रतिश्यायः कासः स्वेदाप्रवर्तनम् |

सन्तापो मध्यवेगश्च वातश्लेष्मज्वराकृतिः ॥ Charaka chikitsa 3/87

Epistaxis is also noted to be frequent complaint among Covid patients, particularly in colder countries like England & Switzerland where special treatment guidelines are released by the governments. Bleeding tendencies per nose, throat or paranasal sinuses are observed in patients of Covid 19. This may indicate Rakta dhatu dushti in patients. Sever condition can be assumed by the presence of petechial hemorrhage or Kawasaki syndrome.

### **Aama in COVID**

With presence of lack of proper appetite or lack of taste for food, malaise or stiffness and heaviness in the body can indicate the presence of Aama, which indeed calls for special attention during management.

Very often the patients feel the presence of phlegm in throat or sinuses. Characteristic presence of pain in throat is also considered specific with Covid patients. Phlegm does not easily become expectorated (तंतुल सत्यानः कंठदेशे अवतिष्ठते) which is characteristic of Saamakapha -Kapha fused with Ama -in the body. This explains why management of Covid is not lucrative.

Bala in COVID – vulnerability of patients with morbidity for Covid 19

It is evidently observed that those persons with co morbid conditions and with low vitality (kids & senior persons) are vulnerable for COVID infection and bad prognosis.

त्वङ्गात्रशेषा येषां च भवत्यागंतुरन्वयः - Charaka Chikitsa 3/177

- Chronic and improperly treated illnesses (fever) likely encompass morbid Dosha within Dhatus (tvangatrashesha) which are vulnerable for secondaries and alien affections (Anvaya- Aagantuja). Aptly due to lack of disease specific immunity in the specific system (Pratyaneeka bala). Relapse of COVID 19 is explained by this.
- Other chronic illnesses may also end in COVID 19 – yet to be understood

### **Glimpses of Dhatugata Vishama Jvara:**

The following table can precisely explain the involvement of Dhatu in VishamaJvara and also a clinical assumption as what a physician can anticipate if a COVID patient has Dhatu involvement. These varieties occur apparently due of innate immunity and illness specific immunity ( Pratyaneeka bala kshaya)

चतुर्थकं च कुरुते प्रत्यनीकबलक्षयात् ॥ Charaka Chikitsa 3/69

VishamaJvara type	Cyclic patterns	Dhatu involvement	Anticipate in Covid patients
Santata	Continuous 7-10-12 days	Rasa	Mild to Acute conditions, cough,chills& breathlessness, Nausea, malaise, heaviness, moderate fever, depression, anxiety, Lymph nodes visible, pneumonitis etc
Satata	Cyclic within day night	Rakta	Low strength, feeling hotness,Intolerance, epistaxis, delirium, autoimmune related complaints, Head ache, medium to high haemorrhage
Anyedushka	Cycles for second day	Medovahasira and Shonita	Sever exhaustion, sweating, aversion to own body odour, sudden vomiting, lack of strength, in addition to above
Triteeyaka	Cycles for third day	MamsaSrotas, Asthiand Majja	Thirstiness, stupor, loose stools, bad odour, feeling hot more internally, Dyspnoea,Moderate to high pain muscular, myositis etc, Shoulder back pain
Chaturtaka	Cycles for fourth day	MedoSrotas, Asthi and Majja	Multiple joint pains, Dyspnoea, hiccough, convulsions, head ache, back & neck pain, vomiting and diarrhoea, neurogenic signs
ChaturtakaViparyaya	Cycles with fourth day overlap of Anyedushka		As above

### Classical Guidelines for treatment of Covid 19

The world may sooner find antiviral medicine for Covid and satisfactory vaccines too. Possible you may have a better Ayurvedic or Homeopathic formula which could be useful Covid patients. But when we talk about Ayurvedic management of Covid patient, it would be quite different from what would be researched as antiviral in conventional medical system.

Unfortunately, a holistic Ayurveda approach is very much missing in most Ayurveda clinics/hospitals in India. It is indeed not necessary that a holistic involves multiple therapies in a single patient. It would be rather the holistic concept intended on patient care which defines the holistic Ayurveda.

Are we still looking for clinical drug trials as complete solution for human health? At least when we think of Ayurveda research, these clinical drug trial may not bring out enough truth and success. At least learning from the pandemic incidence of Covid 19 and searching a broad spectral solution towards Dharma on earth planet, it is essential to re look into the ancient classical texts of Ayurveda.

Therefore, an ultimate recommendation of holistic Ayurveda management could be like this as under;

- Yuktivyapashraya– Effective Khada (infusions), Proper food with traditional spices and other herbs (Yavagu/Peya), therapies including Panchakarma etc are needed
- Sattvavajaya- Self investigation & check list, Dhupana (fumigation)- Purifying the surroundings- correction of Life styles including social distancing etc very important during Janapadodhvamsa (endemic & contagious disease), rituals as noted in Charak Samhita during Vishama jvara treatment (Chikitsa 3/307-9)
- Daivavyapashraya– Meditation, prayers, auspicious performances (Havana) etc.as per treatment advised for vishamaJavar in Charaka Samhita (chikitsa 3/315-17). Praayashchitta (repentance – confession- benediction) for not so far caring nature's sanctity& bio diversity are essential particularly for Pandemic (Janapadodhvamsa).

### Presently recommended Clinical Approaches in Conventional Medicine

- **Non-Exposure Group:**  
Preventive and Prophylaxis – **Vaccines and Prophylactics HQL**  
Normal persons –  
comorbidity persons –
- **Post exposure Group:**  
test negative persons Prophylaxis – **HQL**  
asymptomatic test positive –  
pre symptomatic test positive –  
symptomatic test positive – (Phase wise 1 – 28 – 45 days)
- Recommended **Clinical Management** – Remdesivir- HQL – Azithromycin – Plasma therapy and so on.

For a hybrid treatment recommendation (conventional to Ayurveda) in the non-exposure group the guidelines of Ayush Ministry including herbal tea, Pratimarsha nasya, Yoga breathing etc. Some immunity modulator herbs and formulations can also be used here. For the post exposure group, we can Sudarshana tablet or Samshamani tablet which are already in use by in front Covid worker group though Ayush Ministry has not yet put on record these recommendations.

However, we are very much aware that this cannot do justice to the treatment guidelines of Ayurveda as mentioned in classical texts.

Obviously, a true Vaidya can find reasons in following the guidelines of 'Jvara chikitsa' as standard protocol for other diseases too. Therefore, even if you do not agree completely to put Covid 19 under Vishama jvara guideline, it would be worth to follow the guidelines of Jvara treatment. A brief diagram on scheme is depicted below as a guideline;

The true protection of innate immune responses in the first week of fever onset, could be a great concept for researchers in conventional medicine tomorrow. The concept of Nava jvara in Ayurveda forbidding any strong medicines to be used in this phase of host-parasite interaction.

स्तभ्यन्ते न विपच्यन्ते कुर्वन्ति विषमज्वरम् ॥

दोषाः बध्दाः कषायेण स्तंभित्वात्तरुणज्वरे | Charaka Chikitsa 3/161

Intervening with the natural process of 'Dosha pakva' may end up creating a complex Jvara (vishama) if decoctions used to treat Jvara in first week (Taruna jwara).

### Use of herbal tea, food and life style in Covid 19

The best way is to manage the patient with easily digestible light diet or special gruels prepared out of recommended herbs & better spices. Secondly, the herbal tea every day (Not the decoctions) would definitely help. The tea made out of fresh ginger + fresh Tulsi leaves + fresh Ajapada leaves (oregano) + some rock salt could be taken once. But the more healthier option for drinking tea here will be 'Shadanga paneeya' as noted in Classics.

Herbal fumigation will be useful inside home. Dhoopa dravya like Guggulu, exudate of Sala (Shorea), Neem leaves, Kushta, Jatamansi etc. will be very helpful to sanitize the environment. Most of the Dhoopa substance are rich with 'Benzoin' which was used in conventional practice for disinfecting.

Use of warm water for drinking (Gharmambu) during fever is well recommended in Samhita.

Gargling with saline water (lavanambu kosha) or triphala decoction helps a lot to reduce the viral load in mouth and throat during Covid 19 infection.

If suitable under the physician discretion and the patient has good strength few bouts of vomiting can be induced by drinking salt water or sugar can juice or honey added to water (kshoudrambu). This can relieve the patient from huge further spread of viral infection in the body. This is only done at first week of fever, however, strictly as per physicians' discretion and expertise.

### Use of Herbal Decoctions/Medicines – Covid 19

In the second week, being the period to help further for 'Dosha paachana' it is recommended use the decoction which can work against situation of fever (Covid 19). I would suggest

'Mustaparpashtaka' is a very wise decoction here, However, Sudharshana kvatha or other Vishama jvarahara formula can be started at this juncture looking into the clinical situation of the patient.

### Use of Ghee – Covid 19

On the 10<sup>th</sup> day after the manifestation of Jvara/Covid 19, preferably confirming the 'Dosha pakva' signs in the patient, it would be wonderful to administer ghee . The classics praise usage of Ghee at this phase of treatment. Boosting innate immunity is recommended at this period of host-parasite interaction.

बलं ह्यलं निग्रहायदोषाणां बलकृच्च तत् | Charaka chikitsa 3/167

Host antibody confirmation to the pathogen would wisely reflect in the second week. Recommendation for 'plasma therapy' to Covid 19 patients is suitable advised in the second week after 10 days.

In addition, post viral biochemical load (due to host-parasite interaction) in the body is believed to be one of the reasons for retains signs of 'infection' in the patient though Covid 19 has left the body. This is one of the clinical feature hitherto not specifically observed by virologist in routine viral infections. However, ancient book of Charaka Samhita some interesting explanations regarding this. In the period of JeernaJvara (after 10 days) it may be important to curtail the effect of Ooshma of Jvara (ज्वरस्य ऊष्मा) and thus the use of Ghee and later Milk is recommended in Ayurveda. Warm milk and medicated milk as per the clinical condition of patient is recommended to reduce Ooshma and expel the Pakva dosha which are ready to be expelled (prachyuta dosha) failing which one proceed to Shodhanathe purification therapy.

बद्धप्रच्युतदोषं वा निरामं पयसा जयेत् ॥ | Charaka chikitsa 3/168

### Panchakarma purifications – Covid 19

The patient suffered from fever with or without any symptoms is fit for purification after 15<sup>th</sup> – 21<sup>st</sup> days. Initially mild purgatives like fresh grape juice can be given to patient with milk. However, depending on the Dosha& Dhatu involvement, patient can be treated with Niruha basti, Nasya and also Rakta mokshana. Patients' strength (Bala) should always be looked into.

Abhyanga, Seka, Dhupa, Anjana etc are well recommended for the treatment of Vishama jvara.

Dhaatugatattva of the fever treatment – Panchakarma recommendations on the basis of involvement of Dhatu is briefed here under(based on Charaka chikitsa 3/315-17);



Involvement of Dhatu	Recommended Quote	Briefing
Rasa fever	Vamana, Upavasa	Diet planner (easily digestible), fasting, vomiting in eligible conditions.
Rakta fever	Seka, Pradeha, Prashamana	Padding, paste applications, medications for Raktashamana, Abyanga with chandanadi oil.
Mamsa and Medas fever	Virechana, Upavasa	Diet planner, fasting, purgation
Asthi and Majja fever	Anuvasana, Niruha basti	Oil and decoction enema schedules as per classics.

### Conclusion

Need to adopt selective therapies for individual specific conditions of Covid 19 patients.

The Panchakarma therapy including Ghritashamana Sneha has to be administered in particularly Vyadhi avastha (state of pathology) only.

This demands clinical expertise of Ayurveda Vaidya to close observe the Covid patient and then decide the specific therapy which could be useful in improving the life quality as well recovery from illness.

- COVID 19 – wisely to be considered as Kapha vata predominant Vishama jvara.
- It would be wiser to follow treatment guidelines of Jvara chikitsa.
- State of Pathology before & after the manifestation of illness should be taken into account; Illness of recent onset – 7 to 9 days

Illness after 10 days of onset – Jeerna avastha

Dosha Pakva and Apakva avastha

Aama and Niraama avastha

Vitality (Bala) of the patient

Co existing complaints or morbidity of patient.

**Note from Author:** The write up is a guideline for the management and conceptual clarity to the present problem of Covid 19 in India. This however, not to be considered as legally approved standard measure for world wide application.

# Covid-19 in Children – A Review

Rajagopala S<sup>1</sup>, Karthik K P<sup>2</sup>

<sup>1</sup>Associate Professor & Head, Dept. of Kaumarabhritya,<sup>2</sup> PG Scholar  
All India Institute of Ayurveda, Gautampuri, Sarita Vihar, New Delhi – 110 076.

**COVID-19** is continuing its rampant run over mankind. The first case of the COVID-19 pandemic in India was reported on 30 January 2020, having its origin from China, the number has grown to more than 62,000 cases as on 10<sup>th</sup> May 2020, as per the data available from Ministry of Health and Family Welfare, GOI.<sup>1</sup> The infection rate of COVID-19 in India is reported to be 1.7, significantly lower than in the worst affected countries.<sup>2</sup> Children account for 1-5% of diagnosed COVID-19 cases.<sup>3</sup> The paediatric population is on the milder side in terms of the severity of disease with lower morbidity and lesser mortality. It remains unclear why children and young adults are less severely affected than older individuals, but this might involve differences in immune system function in the elderly and/or differences in the expression/function of the cellular receptor for Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV-2) - Angiotensin converting enzyme 2 (ACE2)<sup>4</sup>. But their role as asymptomatic carriers, atypical pathological findings, physical and mental health concerns associated with lockdown, and the course of the disease in the presence of co-morbidities necessitates further exploration in these aspects<sup>5</sup>. With the traditional medicine systems contributing their significant part in fighting the disease over various parts of the globe, Ayurveda, one of the most popular branches among them, can also give important hints and solutions in understanding and managing the disease in general, as well as in specific populations and age groups.

**EPIDEMIOLOGY:** The Corona virus disease 2019 (COVID-19), as per the statistics of the World Health Organization (WHO), has affected 3634172 people worldwide, and caused 251446 deaths, up to the date of 07 May 2020<sup>6</sup>. The trend in India shows 41472 confirmed cases, 19357

<sup>1</sup> [www.mohfw.nic.in](http://www.mohfw.nic.in) "Home | Ministry of Health and Family Welfare | GOI". *mohfw.gov.in*. Retrieved 10 May 2020.

<sup>2</sup> "[One COVID-19 positive infects 1.7 in India, lower than in hot zones](#)". *The Indian Express*. 19 March 2020

<sup>3</sup> Ludvigsson JF. Systematic review of COVID-19 in children show milder cases and a better prognosis than adults. *Acta Paediatr*. 2020 Mar 23. [E-pub ahead of print]

<sup>4</sup> Balasubramanian et al. Coronavirus disease (covid-19) in children., *Indian Pediatrics* 1 April 09, 2020 [E-pub ahead of print].

<sup>5</sup> Hong H, Wang Y, Chung H-T, Chen C-J, Clinical characteristics of novel coronavirus disease 2019 (COVID-19) in newborns, infants and children, *Pediatrics and Neonatology*, <https://doi.org/10.1016/j.pedneo.2020.03.001>

<sup>6</sup> <https://covid19.who.int/>

cured and 2109 deaths.<sup>7</sup> The disease has spread over more than 215 countries and territories, and all the continents except Antarctica. Men are found to have a higher chance of getting affected, as well as a higher mortality rate (2.8:1.7 Male: Female)<sup>8</sup>, but both the sex are equally affected among children. The incidence, morbidity and mortality of the disease has been found higher in older age groups, especially above 65 years, and mortality is found to be higher in elderly with co-morbid health issues such as diabetes, cardiac illness, immune compromised conditions and such like, children are not an exception for this.

**COVID IN THE PEDIATRIC POPULATION:** The paediatric population has constantly been confined to less than two percent of the total cases, and the mortality has been about 0.01%. Hence they do not come under the risk groups of the disease.

**Transmission:** The transmission is mostly found to be from family members, healthcare workers, or others, or even animals with which they have come in close contact. Though there are some cases reported of COVID-19 infection in new born, there is no sufficient evidence that substantiates intrauterine infection through vertical transmission from mother to child, the transmission through breast milk is also very rare. The mode of transmission is mainly droplets that are expelled while coughing and sneezing. SARS CoV 2 has been detected by Polymerase chain reaction in stool of children even after several weeks of infection, pointing towards the possibility of feco-oral route of transmission<sup>9,10</sup>.

**Clinical features:** According to the data collected among 0.15 million cases in the United States, only 1.7 % were children (less than 18 years). 73% of them had fever, cough, short breaths (93% in 18-65 years) and 20% hospitalizations (adults - 33%). Hospitalizations were higher in older children but maximum in infants<sup>11</sup>. The symptoms usually develop 2 days to 2 weeks following exposure to the virus. The incubation period is 14 days with a mean incubation period of 5.1 days. 97.5 % of patients developed symptoms within 11.5 days<sup>12</sup>.

The most frequent symptoms as observed are Fever, Dry Cough, Short breath, Fatigue, Nasal Congestion, Running Nose, Abdominal Discomfort, Nausea, Vomiting, Abdominal Pain, and Diarrhoea. There are some rare presentations too observed such as dermatological manifestations

<sup>7</sup> [https://www.mohfw.gov.in/ COVID-19 INDIA as on: 10 May 2020, 08:00 IST \(GMT+5:30\)](https://www.mohfw.gov.in/COVID-19%20INDIA%20as%20on%3A%2010%20May%202020%2C%2008%3A00%20IST%20(GMT%2B5%3A30))

<sup>8</sup> <https://www.npr.org/sections/goatsandsoda/2020/04/10/831883664/the-new-coronavirus-appears-to-take-a-greater-toll-on-men-than-on-women>

<sup>9</sup> Hong H, Wang Y, Chung H-T, Chen C-J, Clinical characteristics of novel coronavirus disease 2019 (COVID-19) in newborns, infants and children, Pediatrics and Neonatology, <https://doi.org/10.1016/j.pedneo.2020.03.001>

<sup>10</sup> <https://www.rcpch.ac.uk/resources/covid-19-research-evidence-summaries>

<sup>11</sup> CDC COVID-19 Response Team (2020). Coronavirus Disease 2019 in Children - United States, February 12-April 2, 2020. MMWR. Morbidity and mortality weekly report, 69(14), 422-426. <https://doi.org/10.15585/mmwr.mm6914e4>

<sup>12</sup> Lauer Sa, Grantz KH, Bi Q, Jones FK, Zheng Q, Meredith HR, et al. The incubation period of Coronavirus Disease 2019 from Public Reported Confirmed cases. Estimation and Application. Ann. Internal Medicine, 2020 Mar 10.

like pseudo-chilblains were found in some regions. They could predominantly be grouped into five presentations - Erythema-edema, Vesicles, Urticarial lesions, other Maculo-papular lesions, and Necrosis<sup>13</sup>. Clinical manifestations are mostly mild, and prognosis is often good. Most of the paediatric patients have recovered within 1–2 weeks after onset. Lower respiratory tract infections were uncommon<sup>14</sup>.

The mental health is a major concern in children who are under isolation or quarantine. They often get separated from their guardians, leading to feeling of insecurity, and various conditions like acute stress disorder, adjustment disorder, grief, and post-traumatic stress disorder<sup>15</sup>.

**Diagnosis:** In neonates, any kind of fever, low activity or feeding or short breath, abnormal chest radiograph, infection of any family member and/or the child has come in contact with any case of COVID or unexplained fever or pneumonia (it can also be animals in the market or in the wild) are mandatorily for the diagnosis of COVID infection.<sup>16</sup>

In children, with history of contact with a COVID patient within the past fourteen days and clinical features - presence of fever, any respiratory symptom, gastrointestinal symptoms like diarrhoea.

**Investigations:** It includes Complete blood count (to find out leukopenia, lymphopenia), and C-reactive protein is also tested in case of an increase. Chest screening is done to find out any infiltration if present. Further examination is carried out for suspected patients, viz. on examining nasal or pharyngeal swab or blood samples via Polymerase Chain reaction [PCR], if the sample coincides or is similar with SARS CoV 2, then the case is considered confirmed<sup>17</sup>.

---

<sup>13</sup> Galván Casas, C., Català, A., Carretero Hernández, G., Rodríguez-Jiménez, P., Fernández Nieto, D., Rodríguez-Villa Lario, A., Navarro Fernández, I., Ruiz-Villaverde, R., Falkenhain, D., Llamas Velasco, M., García-Gavín, J., Baniandrés, O., González-Cruz, C., Morillas-Lahuerta, V., Cubiró, X., Figueras Nart, I., Selda-Enriquez, G., Romaní, J., Fustà-Novell, X., Melian-Olivera, A., ... García-Doval, I. (2020). Classification of the cutaneous manifestations of COVID-19: a rapid prospective nationwide consensus study in Spain with 375 cases. *The British journal of dermatology*, 10.1111/bjd.19163. Advance online publication. <https://doi.org/10.1111/bjd.19163>

<sup>14</sup> Hong H, Wang Y, Chung H-T, Chen C-J, Clinical characteristics of novel coronavirus disease 2019 (COVID-19) in newborns, infants and children, *Pediatrics and Neonatology*, <https://doi.org/10.1016/j.pedneo.2020.03.001>

<sup>15</sup> Liu, J. J., Bao, Y., Huang, X., Shi, J., & Lu, L. (2020). Mental health considerations for children quarantined because of COVID-19. *The Lancet. Child & adolescent health*, 4(5), 347–349. [https://doi.org/10.1016/S2352-4642\(20\)30096-1](https://doi.org/10.1016/S2352-4642(20)30096-1)

<sup>16</sup> Hong H, Wang Y, Chung H-T, Chen C-J, Clinical characteristics of novel coronavirus disease 2019 (COVID-19) in newborns, infants and children, *Pediatrics and Neonatology*, <https://doi.org/10.1016/j.pedneo.2020.03.001>

<sup>17</sup> Tezer, H., & Bedir Demirdağ, T. (2020). Novel coronavirus disease (COVID-19) in children. *Turkish journal of medical sciences*, 50(SI-1), 592–603. <https://doi.org/10.3906/sag-2004-174>

**Understanding COVID-19 through Ayurveda:**

There is no disease explained in Ayurveda texts which can be directly correlated with COVID-19 disease, though there are many conditions which have some or other features of this disease. Understanding of the disease may be postulated as follows:

**Pathogenesis** in the Ayurvedic perspective: Children with a disturbed internal environment of physical-mental equilibrium and immunity in general (called *Ojas, Vyadhikshamatva*), and in specific, those who have accumulated *Kleda* in their respiratory, circulatory, and excretory passages and vital organs are more vulnerable to get attacked by the pathogen. Other morbidities like malignancies, which render the subject immune-compromised, are also to be considered contributory to the risk factors. The virus attacks, predominantly through respiratory droplets, through surface remnants, and rarely through feco-oral route, transmitted from clinical cases as well as asymptomatic carriers (who may be humans, mammals, and rarely even birds).

The pathogen mingling with the *Doshas* and impairing them, causes them to localise at the *Pranavaha Srotas* primarily. There it gives rise to a range of symptoms from trivial to severe, from dyspnoea to pneumonia and Acute Respiratory Distress Syndrome. Meanwhile, these *Doshas* do not always confine themselves to a single *Srotas* or circulatory pathway. They evade the *Annavaha Srotas* to present diarrhoea and vomiting, then *Rasavaha Srotas*, causing fever, malaise, and headache, further to *Raktavaha Srotas* causing haemoptysis and dermatological presentations, and even other pathways which includes *Marma* or vital organs giving rise to multiple organ failure, and finally death.

On analysing symptomatically, COVID-19 resembles *Kapha-Vata dosha* predominant *Jvara* as it exhibits *Pinasa* (rhinorrhea), *Shwasa Kashtata* (dyspnoea), *Kasa* (cough), *Shiroruja* (headache), *Tandra* (malaise/fatigue), etc. When it incorporates other *Doshas* into it, it presents as diarrhoea (the *Sara-Drava* or fluid component of *Pitta* adding upon the existing lack of digestive capacity (*Agnimandya*) and vitiation of the *Vatadosha*), lymphopenia (the circulating *Rasa* and *Rakta* getting afflicted by *Ama* or improperly processed nutrient), haemoptysis (*Tikshna-Ushna* or the pungent-hot potency vitiating *Pittadosha* and *Drava* property or fluidity of *Rakta* or blood increasing) and other symptoms. The *Pittadosha* is also to be considered here as there is no *Jvara* without *Pitta*<sup>18</sup>, and *Shwasa* is a *Kapha-Vata* predominant disease originating from the site of *Pitta*<sup>19</sup>.

**MANAGEMENT:** The management of any disease initially involves with the eradication of cause, followed by specific medication and rehabilitation after cessation of active disease. In case of COVID-19 infection, there is no specific medication available as on date, and also a sure shot vaccine for prevention. All available measures are of supportive and symptomatic in nature

<sup>18</sup> Vagbhata, edited by Pt. Hari Sadashiva shastri Paradakara, Ashtanga Hrdaya, Chikitsasthana, 1/16, Jvarachikitsa, Chaukhamba Surbharati Prakashan Varanasi, 2010 Edition

<sup>19</sup> Agnivesha, Caraka, Drdhabala, Dr. Lakshmidhar Dwivedi, Caraka Samhita, Cikitsasthana, Hidhmasvasacikitsa 17/8, Chaukhambha Krishnadas Academy, Varanasi, 4<sup>th</sup> edition, 2017

and whole medical fraternity in the world is in search of a definite cure. The management approaches are in the form of diet, regimen and certain antiviral drugs.

The basic and most effective measure is to ensure a check on transmission of the pathogen virus. In Ayurveda code of conduct (*Sadvritta*), it has been mentioned that sneezing, laughing, and yawning must not be done without covering the face<sup>20</sup>. The chances of coming into contact are to be avoided by maintaining a safe distance of at least one meter. The causes mentioned in the context of contagious diseases have to be eradicated like sharing of materials, clothes, and direct contact. Regular washing of hands is required to prevent transmission from accidental contacts. *Dhupana* (fumigation) with drugs having antimicrobial properties like *Guggulu* (*Commiphora mukul* (Stocks) Hook. / *Commiphora wightii* (Arn.) Bhandari), *Vacha* (*Acorus calamus* Linn.), *Lashuna* (*Allium sativum* Linn.), etc. is also advised as fumigation desiccates the moisture, making it hostile to microbial growth.

*Nasya* or nasal instillation of plain or medicated oil checks the entry of macro and micro organisms to some extent through nasal passage, it also clears the nasal passage, strengthens the nasal mucosal resistance. In children of young age, classical *Nasya* (*Pratimarsha*) may not be practical, there, application of the same may be made to the nostrils.

*Gandusha & Kavala* or gargling is another effective measure to clear the throat, when it is done with medicated decoctions or oil, it helps in clearing the throat and upper respiratory tract, in children who can do this, it will be much beneficial in checking the spread of virus.

Children are to be engaged in creative hobbies, and regular exercise is to be ensured. Below one year, keeping them physically active is recommended. Children above four years (as they take instructions by the age) can be trained in *Yogasana* and *Pranayama*. In the age group of 5 to 17 years, musculoskeletal strengthening exercises have to be done at least thrice weekly, daily practice of Yoga and *Pranayama* are good for all.

Further, the getting engaged in sedentary activities such as watching television, computers, and mobile phones are to be restricted, monitored and controlled. As per the recommendations of WHO and American Association of Paediatrics, a screen time of 1 hour is allowed between three to five years, 2 hours for age group 13 to 15 years, and 1.5 hours for the intermediate group<sup>21</sup>.

The needs and concerns of children in relation to mental health are unique and are of paramount importance. Involving them in daily chores of life is the best and attempts are to be made to -

- Restore their communication with caregivers;

<sup>20</sup> Vagbhata, edited by Pt. Hari Sadashiva shastri Paradakara, Ashṭaṅga Hrdaya, Sutrasthana, 2/35, Dinacharya, Chaukhamba Surbharati Prakashan Varanasi, 2010 Edition

<sup>21</sup> <https://www.who.int/news-room/detail/24-04-2019-to-grow-up-healthy-children-need-to-sit-less-and-play-more>

- Keep them informed about the disease through genuine comic books and videos – ‘My hero is you’, released by Inter-Agency Standing Committee instituted by WHO is one among them<sup>22</sup>;
- Help them establish a regular activity scheme;
- Provide happiness in the form of small gifts; and
- Refer in time to psychiatrists when mental discomforts are noticed.<sup>23</sup>

The paediatric population has to be considered as separate individuals with high vulnerability and not a subset of the adult population. Children are always unctuous due to regular milk and milk product consumption, especially infants<sup>24</sup>. They are to be dealt with medicines that are softer on the body tissues and that too, in a lower dose<sup>25</sup>. In children who are breastfed, medicines may also be given to mother so as to fortify the breast milk with the desired medications or by local application over the breast before feeding.<sup>26</sup>

The administration of Ayurveda drugs is possible in all three phases with respect to the disease; unaffected or quarantined individuals, in the mild to moderate stages among affected individuals, and in the period of rehabilitation.

The goal for unaffected and quarantined individuals has to be improving the immunity and manage the pre-existing morbidities. Measures to enhance immunity have been advised by the Ministry of AYUSH, of which consumption of *Chyawanaprasha*, and milk boiled with turmeric (Golden Milk) is easy for children to comply with. The existing morbidities are to be addressed with their respective medications. Moreover, *Chyawanaprasha* along with milk has been found to improve immunity (lesser incidence of diseases, lesser absences in school), general health, stamina, and strength in school going children, compared to consumption of milk alone<sup>27</sup>. The effects of drugs like *Ashwagandha* (*Withania somnifera* (L.) Dunal), *Guduchi* (*Tinospora cordifolia* (Thunb.)

<sup>22</sup> <https://www.who.int/news-room/detail/09-04-2020-children-s-story-book-released-to-help-children-and-young-people-cope-with-covid-19>

<sup>23</sup> Liu, J. J., Bao, Y., Huang, X., Shi, J., & Lu, L. (2020). Mental health considerations for children quarantined because of COVID-19. *The Lancet. Child & adolescent health*, 4(5), 347–349. [https://doi.org/10.1016/S2352-4642\(20\)30096-1](https://doi.org/10.1016/S2352-4642(20)30096-1)

<sup>24</sup> Vagbhaṭa, edited by Pt. Hari Sadashiva shastri Paradakara, Ashtaṅga Hridaya, Uttarasthana, 2/30, Balamayaprathishedham, Chaukhamba Surbharati Prakashan Varanasi, 2010 Edition

<sup>25</sup> Ibid

<sup>26</sup> Arogyarakshakalpadruma, Rogabhadhprakarana, 1/58, Kaikkulangara Rama Varier, Sulabha Books, Thrissur, 2002, Sixth edition.

<sup>27</sup> Gupta, A., Kumar, S., Dole, S., Deshpande, S., Deshpande, V., Singh, S., & Sasibhushan, V. (2017). Evaluation of Cyavanaprāśa on Health and Immunity related Parameters in Healthy Children: A Two Arm, Randomized, Open Labeled, Prospective, Multicenter, Clinical Study. *Ancient science of life*, 36(3), 141–150. [https://doi.org/10.4103/asl.ASL\\_8\\_17](https://doi.org/10.4103/asl.ASL_8_17)

Miers), and *Amalaki* (*Phyllanthus emblica* Linn.) have received nod from the Health Ministry to be tested for efficacy in immunomodulation and restoration of the lost immune homeostasis<sup>28</sup>.

In the Mild to moderate cases, the need of medication specific to clinical condition arises, that are *Kapha-Vata* pacifying in action, at the same time, not *Pitta* vitiating. Drugs like *Kalamegh* (*Andrographis paniculata* (Burm.f.) Nees) have been identified to have antiviral action, but its specific action towards SARS CoV 2 virus is yet to be established. The role of Ayush-64 (the Ayurvedic anti-malarial drug) is also among the Ayurvedic drugs that would undergo clinical trial in combating COVID-19.

The severe degree of cases needs life support and conventional medical system is the best here, along with adjuvant Ayurveda approach.

At the phase of rehabilitation, it demands tackling the physical and mental afflictions caused by the disease. The *Ojas* or the immunity and milieu-interior have to be restored by using medicines that are light to digest, nourishing, and appetising. Judicious use of Rasayana drugs shall be done for the non-recurrence of disease. A few tailor made *Rasayanas* that would play significant role in the rehabilitation post COVID-19 are:

- *Pippali Rasayana*<sup>29</sup> (Those who have acquired pneumonia, dyspnea, and other respiratory conditions during the attack)
- *Guduchi Rasayana*<sup>30</sup> (If the attack was predominant in fever)
- *Shilajatu Rasayana*<sup>31</sup> (If acute cardiac injury has occurred)
- *Brahmi Rasayana*<sup>32</sup>, *Triphala Rasayana*<sup>33</sup>, etc in case of haemoptysis and associated disorders.

<sup>28</sup> <https://theprint.in/health/govt-plans-to-test-whether-ashwagandha-mulethi-guduchi-will-help-fight-covid-19/406952/>

<sup>29</sup> Vagbhata, edited by Pt. Hari Sadashiva shastri Paradakara, *Ashtaṅga Hrdaya*, uttarasthana, 39/-, *Rasayanavidhi*, Chaukhamba Surbharati Prakashan Varanasi, 2010 Edition

<sup>30</sup> Vagbhata, edited by Pt. Hari Sadashiva shastri Paradakara, *Ashtaṅga Hrdaya*, *Chikitsasthana*, 1/154, *Jvarachikitsa*, Chaukhamba Surbharati Prakashan Varanasi, 2010 Edition

<sup>31</sup> Vagbhata, edited by Pt. Hari Sadashiva shastri Paradakara, *Ashtaṅga Hrdaya*, uttarasthana, 39/136-138, *Rasayanavidhi*, Chaukhamba Surbharati Prakashan Varanasi, 2010 Edition

<sup>32</sup> Vagbhata, edited by Pt. Hari Sadashiva shastri Paradakara, *Ashtaṅga Hrdaya*, uttarasthana, 39/50-54, *Rasayanavidhi*, Chaukhamba Surbharati Prakashan Varanasi, 2010 Edition

<sup>33</sup> Vagbhata, edited by Pt. Hari Sadashiva shastri Paradakara, *Ashtaṅga Hrdaya*, uttarasthana, 39/42-43, *Rasayanavidhi*, Chaukhamba Surbharati Prakashan Varanasi, 2010 Edition



- Ghee preparations like *Vasaghrita*<sup>34</sup> (haemoptysis, bleeding disorders), *Pippalyadi Ghrita*<sup>35</sup> (fever, respiratory complaints), *Indukanta Ghrita*<sup>36</sup> (Immuno-compromised individuals).

**Diet and Regimen:** Current evidence on other corona virus strains shows that while corona viruses appear to be stable at low and freezing temperatures for a certain period, food hygiene and good food safety practices can prevent their transmission through food. Specialised diet patterns are to be recommended in various phases of COVID. All the dietary items should be light, nutritious and easy to digest, the noteworthy areas of therapeutic diets are:-

- As the condition is dominant in *Shwasa* (which is *Kapha-Vataja* disease with *Pitta sthana* in origin), and haemoptysis (*Urdhvaga raktapitta*) along with fever, the use of *Peya* and its variants, though ubiquitously recommended, is not advisable. Instead, *Laja* (puffed or fired paddy) shall be used to make the nourishing diet (*Tarpana*) *Mantha*, and administered after prior medication<sup>37</sup>. Rice and gruel shall be consumed on relief of the condition and even in the prophylactic phase.
- Vegetables: Bitter gourd, snake gourd, pointed gourd, ash gourd, spinach, etc. shall be used<sup>38</sup>.
- Fruits: All fruits are not recommended, especially those with predominant sour taste as they are potent to imbalance the *pitta dosha*. Gooseberries, Pomegranate, and grapes are the safest to follow<sup>39</sup>.
- Water should be boiled with these drugs in case of or in vulnerability towards their indicated diseases<sup>40</sup>:
  - Coriander / Neem / Ingredients of *Guduchyadi gana*<sup>41</sup> (Urinary tract infections, burning sensations, excess thirst, haemoptysis)
  - Dried ginger/cumin seeds (Loss of appetite, mild fever, malaise)
  - Long Pepper (*Piper longum* L) (Respiratory ailments)
- Ensure timely sleep, and sufficient physical activity.

<sup>34</sup> Vagbhata, edited by Pt. Hari Sadashiva shastri Paradakara, Ashtanga Hrdaya, Chikitsasthana, 2/44-46, Raktapittachikitsa, Chaukhamba Surbharati Prakashan Varanasi, 2010 Edition

<sup>35</sup> Vagbhata, edited by Pt. Hari Sadashiva shastri Paradakara, Ashtanga Hrdaya, Chikitsasthana, 1/90-91, Jvarachikitsa, Chaukhamba Surbharati Prakashan Varanasi, 2010 Edition

<sup>36</sup> Dr Pavana, Dr Manoj Sankaranarayana, Sahasrayogam: A clinical Handbook of Ayurveda from Kerala, E-text based on printed editions, Ghritaprakaranam/5, 2012 edition.

<sup>37</sup> Vagbhata, edited by Pt. Hari Sadashiva shastri Paradakara, Ashtanga Hrdaya, Chikitsasthana, 1/35, Jvarachikitsa, Chaukhamba Surbharati Prakashan Varanasi, 2010 Edition

<sup>38</sup> Vagbhata, edited by Pt. Hari Sadashiva shastri Paradakara, Ashtanga Hrdaya, Chikitsasthana, 1/65, Jvarachikitsa, Chaukhamba Surbharati Prakashan Varanasi, 2010 Edition

<sup>39</sup> Ibid

<sup>40</sup> Ibid

<sup>41</sup> Ibid

\*\*\*\*\*

**CONCLUSION:** Covid-19 – The disease as well as response towards the same, has profound and unique impact on the paediatric population. They need to be separately addressed and mitigated on a global basis. Ayurveda is a science that gives equal importance to maintenance of health and treatment of illnesses. With the backup of proper evidence and infrastructure, Ayurveda can pave way for significantly effective prevention, cure, and rehabilitation methods for the paediatric as well as general population.



**Disclaimer:** This article includes collated information from various publications available in the public domain. The views expressed herein are personal and are meant only for academic purposes and shall not be construed as means of practice, protocol, guidelines etc.

# Covid-19: Safe and Effective Herbal Formulations for Immuno-modulation

Prof Sathyanarayana B, M.D( Ayu) Principal Muniyal institute of ayurveda medical sciences,  
Manipal e-mail:- [bhaishajya@yahoo.com](mailto:bhaishajya@yahoo.com)

## INTRODUCTION:

As the world scrambles to find a cure for Covid-19, health experts have suggested boosting the body's immune system may help minimize the effects and hasten the recovery from the disease. The AYUSH ministry's protocol outlined measures to build a robust immune system.

Ayurvedic herbs also help increase the production of interferons (proteins) and antibodies to generate an immune response against viruses and increase the rate of phagocytosis to destroy microorganisms, thus, increasing immunity from containing viral infections, said former CSIR scientist A K S Rawat. However, Ayurveda can offer much more than that. Ayurveda can offer an entire prophylactic and therapeutic approach including immune boosting, antiviral, antipyretic and other symptomatic approaches. Research and therapeutic strategies for COVID-19 have focused on agents to attack the virus or immunize against it. This leaves aside the consideration of the host—one of the most important factors in disease dynamics. Ayurveda pays particular attention to the host and recommends measures for a healthy lifestyle rather than the mere prescription of medicine. Charaka Samhita, the classic of Ayurveda, describes epidemic management and defines immunity as the ability to prevent disease and arrest its progress to maintain homeostasis.

## CONCEPT OF IMMUNITY IN AYURVEDA

The concept of building strength of mind and body to cope with various stressors, including infection, is a cornerstone of Ayurveda practice. Similar to innate and acquired immunity, the Ayurveda concept of immunity (Bala or strength) is classified as natural (Sahaja), chronobiologic (Kalaja), and acquired (Yuktikrut). The holistic approach of Ayurveda toward promoting health (Swasthavritta) includes personalized interventions based on host and environmental factors.

## SUGGESTED INTERVENTIONS

The interventions include therapeutic cleansing procedures (known as Panchakarma) and certain immune-modulators (known as Rasayana). Local and systemic interventions to boost the immune system have been advocated to manage respiratory illnesses. The choice of specific Ayurveda therapeutic agents and practices is based on certain individual genetic characteristics known as Dosha prakriti types (Vata, Pitta, and Kapha).

### **POSSIBLE MECHANISM OF ACTION OF RASAYANA DRUGS IN MODERN SCENARIO:**

1. Anti-oxidant action
2. Immuno modulatory action
3. Haemopoetic action
4. Adaptogenic action
5. Anti-aging action
6. Anabolic action
7. Nutritive function
8. Neuroprotective action

### **RASAYANAS AS IMMUNOMODULATORS**

Due to its effects on improving immunity, Rasayana therapy may have direct relevance to the prophylaxis and management of SARSCOV-2 infection. The botanicals used in Rasayana therapy have been found to be effective in immunomodulation and restoration of immune haemostasis. Shi et al. described the immune response to SARS-COV-2 infection in two phases. The first protective phase of adaptive immune response in the host that may eliminate the virus in a large proportion of subjects. In relatively few cases, the viral infection progresses, causing intense release of pro-inflammatory cytokines (cytokine storm). The cytokine storm results in severe inflammation, leading to lung damage and co-attendant multi-organ failure. Thus, although antivirals are important, a robust and well-contained immune response to maintain immune homeostasis will be critical for good recovery and reduced mortality. This requires a favorable Th1/Th2 cytokine balance.

## RASAYANA DRAVYAS

### I. SINGLE HERBS

### II. POLYHERBAL FORMULATIONS

#### I. IMMUNOMODULATOR SINGLE HERBS:

1. ASHWAGANDHA

2. GUDUCHI

3. AMALAKI

4. YASHTIMADHU

5. PIPPALI

1. **Ashvagandha (*Withania somnifera*) -A potent candidate** :Several in vitro, animal, and clinical studies over the last two decades have been carried out on Ashwagandha to demonstrate primarily the immune-modulatory and antioxidant effects of Ashwagandha. The selective Th1 up-regulation by aqueous extract of Ashwagandha roots has been shown in a mice model. Ashwagandha aqueous extract has a broad-spectrum dose-dependent role in immune homeostasis. According to Girish Tillu et.al. based on available data, it is suggested that when used appropriately, Ashwagandha may be effective in improving host immunity through the modulation of key targets relevant to COVID-19. They have demonstrated the clinical effects of Ashwagandha containing Ayurvedic formulation to be equivalent to HCQ in a RCT for treating rheumatoid arthritis. Therefore it is suggested that selected Ashwagandha formulations may be effective as a prophylactic and adjunct treatment of COVID-19. Ashwagandha might be a better and safer alternative to disease-modifying drugs such as HCQ.
2. **Guduchi (*Tinospora cordifolia*)**: The significant actions of Guduchi include promoting Bala (cellular and humoral immunity), Agnideepana, cures fever, eliminates Ama (metabolic wastes and toxins), skin diseases, Upper respiratory tract infections, gout etc. *T. cordifolia* can be used as immune-modulator for activation of macrophages in bacterial infection (More P et.al.). In a study fresh juice extract of Guduchi was evaluated for its immunomodulatory and antioxidant activity. The antioxidant activity of the same was evaluated against free radicals whereas immune-modulatory activity was carried out in cyclophosphamide induced immune-suppressed Swiss albino mice. Haemagglutination test was used to assess their effects on humoral response. It showed in vitro antioxidant

activities. Similar effects were observed in total antioxidant activity against DPPH radical, reducing power and NO radical. It stimulated the humoral immune response. Increased haemagglutination inhibition was observed (Athar Hussain et.al.). Cordifolioside A and syringin have been reported to possess immune-modulatory activity. Other five compounds showed significant enhancement in phagocytic activity and increase in nitric oxide and reactive oxygen species generation at concentration 0.1-2.5 µg/ml.(Sharma U et.al.)

### 3. AMALAKI (*Embllica officinalis*)

Āmalaki Rasāyana possesses significant immune-stimulant activity and moderate cytoprotective activity. Influence of Amalaki Rasayana on telomerase activity and telomere length in human blood mononuclear cells is established. The data indicate that the maintenance of telomere length is facilitated by an increase in telomerase activity upon rasayana administration in aged individuals and Amalaki Rasayana may prevent the erosion of telomeres over a period of time in aged individuals to promote healthy ageing. ChaturthamalakaRasayana possesses significant cytoprotective activity and moderate immunostimulant activity. Among the four combinations, all test samples were found effective in immunosuppressive rats. Test sample IV containing Amalaki, Haritaki and Bibhitaki found more potent than or as similar as response in comparison of standard group (Levamisole).

### 4. Yastimadhu (*Glycyrrhiza glabra*)

Licorice polysaccharide especially of low molecular weight exhibit anticancer and immunomodulatory activities by suppressing tumor growth and improving general health of mice. They also augment the thymus/spleen index and population of T lymphocytes. Furthermore, the polysaccharides enhance the levels of serum antitumor cytokines, IL 2, IL 6 and IL 7 while decreasing pro-tumor cytokine TNF $\alpha$ . [Ayeka PA, Bian Y, Githaiga PM, Zhao Y. The immunomodulatory activities of licorice polysaccharides (*Glycyrrhizauralensis*Fisch.) in CT 26 tumor-bearing mice. BMC Complement Altern Med. 2017;17(1):536. Published 2017 Dec 15. doi:10.1186/s12906-017-2030-7]. Polysaccharide fractions obtained from *Glycyrrhizaglabra* stimulate macrophages and hence elevate and assist immune stimulation. Glycyrrhizic acid present in the plant inhibits virus growth and inactivates virus particles is a potential source of immune-modulator.

### 5. Pippali- *Piper longum* Linn.

*P. longum* possesses several pharmacological properties like antibacterial, antifungal, insecticidal, antiulcer, antiplatelet, antiamoebic, hepatoprotective, adulticidal, anti-obesity, larvicidal, antidepressant, anticancer, anti-asthmatic etc. *P. Longum* significantly increases macrophage migration inhibition and phagocytic activity (Agarwal, et.al.) Piperine of *P. longum* shown to enhance the bioavailability of structurally and therapeutically varied drugs. Mananvalan and Singh (1979) reported the immunomodulatory potential of *P. longum* fruits extract has been evaluated by hoemagglutination titre, macrophage migration index, and phagocytic index in mice.

### IMMUNOMODULATOR HERBAL FORMULATIONS:

1. Chyavanapraasha
2. Kushmandavaleha
3. Ashvagandhadi leha
4. Agastya rasayana
5. Vyaaghere hareetakee

#### 1. Chyavanapraasha Avaleha:

- Protects and Strengthens the Respiratory System
- Acts as antioxidant, Adaptogenic, and Immune-Booster
- Exhibits nootropic Potential and Cardiotonic Value
- Potent Aphrodisiac and Balances the Endocrine System
- Radioprotective, Cytoprotective, Genoprotective, Antimutagenic and Anticarcinogenic Effects
- It is Preventive, Promotive and Curative Health Benefits with established safety.

#### 2. Kushmandavaleha:

Rasayana, Balya, Vrishya, Brimhana, Urah Sandhanakara

Kushmunda (*Benincasahispida*) is Anti oxidant, anti inflammatory, Anxiolytic, Antipyretic and antinociceptive

**3. ASHVAGANDHADI LEHA:** Acts as Rasayana, Vrishya, immunomodulatory, antioxidant, adaptogenic, aphrodisiac, anabolic and anodyne.

**4. AGASTYA RASAYANA(SYSTEM SPECIFIC):** It is Naimittikarasayana in Tamaka shwasa, acts as Rasayana, Nutraceutical, Immunomodulatory. Hydrolysable tannins of *T. chebula* – acts as anti mutagenicity in *Salmonella typhimurium*.

**5. VYAGHRI HARITAKI(SYSTEM SPECIFIC):** Vyaghriharitaki is an ayurvedic preparation for cough, cold, coryza, breathlessness, etc. The pharmacological actions of the formulation and its constituents are largely supported by experimental evidence. It possesses immunomodulatory, antitussive, expectorant and bronchodilator effects [Deepshikha et al :Vyaghri haritaki: A Drug Overview, International Journal of Applied Ayurved Research, Volume Ii Issue Iv Nov-Dec 2015, 485-491]

#### CONCLUSION:

Use of both general and specific Rasayana herbs and formulations judiciously will certainly help in enhancing the immunity of an individual. This will help to combat COVID 19 infection. Better immunity helps in speedy recovery of COVID positive individuals. Herbs and formulations having immune-modulatory, antipyretic and antiviral properties are to be further investigated and used for prophylaxis and also as add on therapy in COVID 19 infections.

\*\*\*\*\*



# Ayurvedic Wisdom of Immunity And its Relevance to Covid-19

Prof Ravishankar Shenoy, Head, Dept of Roganidana, Muniyal Institute of Ayurveda Medical Sciences, Manipal e-mail:- [ayudrravi@gmail.com](mailto:ayudrravi@gmail.com), Mob: 9448348624

**Introduction:** In the era of the global pandemic caused by the novel Corona virus, Covid- 19 it is relevant to discuss the concept of immunity as is described in the Ayurveda texts. The concept of immunity has been elaborated in various contexts in the text of Ayurveda and are found scattered. This concept of immunity is called Vyadhikshamatva. So, before we discuss the concepts of Vyadhikshamatva, it is important to consider certain concepts that are coming to light about the Novel Corona virus or the N Covid-19. This forms the background in understanding the wisdom behind the concept of immunity as described in the texts of Ayurveda.

**Key words:** Covid-19, Pandemic, Immunity, Vyadhikshamatva

Novel Coronavirus after its first showup in Wuhan, China has spread all over the globe and is already declared a global pandemic. It is taking alarming proportions and new facts are being researched and reported day in and out. In an article published on April 27, 2020 in the Lancet entitled “What policymakers need to know about coronavirus protective immunity” the following points have been discussed-

1. Countries that aim to stagger return to work on the basis of disease severity risk and age do not take account of how exposing even lower-risk individuals, such as young people with no comorbidities, to the virus so as to increase herd immunity can still result in pandemic spread.
2. The linchpin for a strategy to move out of lockdown seemingly rests on increased testing and contact tracing, possible return-to-work permits based on immune status, repurposed or new therapeutics, and, finally, vaccination.
3. There is no certainty as to the immunological correlates of antiviral protection or the proportion of the population who must attain them, making it impossible to identify a point when this level of immunity has been reached.

4. Scaled up antibody testing will determine who is immune, thus giving an indication of the extent of herd immunity and thus confirming who could re-enter the workforce.
5. There are questions to be addressed about the accuracy of tests and practicalities of implementation of laboratory- based versus home use assays.
6. How solid is the assumption that antibodies equate to functional protection?
7. Furthermore, if presence of these antibodies is protective, how can it be decided what proportion of the population requires these antibodies to mitigate subsequent waves of cases of Covid-19?
8. The concept of correlates of protection, initially proposed by Stanley Plotkin, rests on the notion of empirically defined, quantifiable immune parameters that determine the attainment of protection against a given pathogen. Caution is needed because total measurable antibody is not precisely the same as protective, virus- neutralizing antibody. Furthermore, studies in Covid-19 show that 10-20% of symptomatically infected people have little or no detectable antibody. In some cases of Covid-19, low virus-binding antibody titres might correlate with lethal or near lethal infection, or with having had a mild infection with little antigenic stimulation.
9. A study of survivors of SARS showed that about 90% had functional, virus-neutralizing antibodies and around 50% had strong T-lymphocyte responses- These data rely on hospitalized patients and there is no account of non- hospitalized patients.
10. How long is immunity to COVID-19 likely to last? The best estimate comes from the closely related coronaviruses and suggests that, in people who had an antibody response, immunity might wane, but is detectable beyond 1 year after hospitalization. Obviously, longitudinal studies with a duration of just over 1 year are of little reassurance given the possibility that there could be another wave of COVID-19 cases in 3 or 4 years.
11. WHO report 'Immunity passports in the context of Covid-19' on 24<sup>th</sup> April,2020 reads- 'No study has evaluated whether the presence of Antibodies to SARS CoV-2 confers immunity to subsequent infection by this virus in humans', and secondly laboratory tests that detect antibodies against SARS CoV-2 have to be validated for accuracy and reliability or else there could be false positive or false negative reports. There are 6 sets of known Human Corona viruses and antibodies against one type could cross react with other varieties of Corona viruses.

With these aspects in mind, let us now move on to the concepts of immunity as described in Ayurveda texts. In Ayurveda, “Vyadhikshamatva” denotes the aspects of immunity under two broad categories, namely disease prevention and restriction of severity of disease thereby restoring the health. This term has been described in the context of describing the impact of etiological factors i.e.,Nidana in disease causation. It is described that “not all adverse foods –Apathya can cause Doshaggravation to the same extent, neither are the Doshic aggravation of the same strength nor are all human beings equally capable of resisting the severity of the diseases. It is very clear that “Vyadhikshamatva” implies resistance to diseases and also the measures to overcome the onslaught of disease. The same in the modern parallels is described as immunity.

Immunity is classified as natural and artificial, and also as innate and acquired. It is clear that both these aspects are included in the concept of “Vyadhikshamatva”. If we scan the texts, we come across various terminologies “Bala”, “Vikaravighatabhava”, “PratyanikaBala”, “Ojus” (DhatuTeja/ Dhatu Sara) which all help us to understand the concept of Immunity. In addition, the normally functioning Vata, Kapha and Agni are also related to “Vyadhikshamatva”.

What is ‘Bala’?

- ‘Bala’ has been described as a measure of endurance to physical stress or exercise under the Anumana parikshagamyabhava. Does it imply merely physical strength? – is a point to be pondered.

The description of Bala is scattered in various contexts of health and disease. It is related to the body (Deha bala), Agni, Doshas, Dhatu, Mala, Sattva (Manas), Prana, Kala, Roga, Aushada and others. It is very clear that the concept of Bala is applied to the maintenance of health as well as disease. Physiologically Deha bala, Agni bala, Kala bala, Sattva bala play a predominant role in the maintenance of health. The DehaBala can be increased by regular and controlled Vyayama as described in the texts with due consideration of self and season. Food is said to be the Bahya prana that supports the Abhyantara prana and for the effective utilization of the same, optimally functional Agni is utmost important. Hence, it is described that Praana depends upon Agni or rather Agni itself may be considered as Praana(Ca.Ci.15/3). Also the effective nutrition brought about by properly consumed food is also dependent upon optimal Agni (Ca.Ci.15/5). It is beyond doubt that optimal Agni is pivotal for the maintenance of Doshas in normalcy which is why all diseases are said to be caused by Mandagni and more so the disease Udara. This is also justified by the classification of Bala into 3 categories as ‘Sahaja’, ‘Kalaja’, ‘YuktiKrita’. Here Sahaja and Kalaja

mechanisms are related to the natural immunity. While Yuktikrita implies acquired artificial immunity.

Sahaja bala is related to the disease resistance of the body as well as the mental ability (will power) to overcome the suffering. The seasonal influences and also the age specific immunities are described under Kala Krita bala. The use of specific foods (food endowed with all six tastes in balance proportions, intake of ghee, milk, meat soup and such other food described as homologous and strengthening), activities such as optimal physical exercises, practice of Yoga, Pranayama and the administration of immune boosting medicaments (Rasayana) are all considered under Yuktikrita bala. This implies the present-day administration of Vaccines and immunization schedules. The aspects of Bala related to Dosha bridges the physiological and pathological domains of immunity as implicated by the definition of dosha i.e., in normalcy it maintains the body and when aggravated it causes diseases. The strength of the Doshas to resist its aggravation following indulgence in etiological factors (Nidana) is vital in maintaining health and this is described under Sahaja bala. Lack of this Sahaja bala is determined whilst the Prakriti (constitution) gets formed. In pathological context when the Dosha's get aggravated due to Etiological factors, their relative strengths must overcome the immunological mechanisms in the tissues (Dhatu bala), which is phenomenal in the disease pathogenesis. The tissue immunity is aided by the Dhatu sarata also called 'Ojus', which prevents the vitiation of Dhatus following Dosha aggravation. These concepts are described under 'Vikara vighata bhava' which means factors resisting the disease onset.

The Sattva bala is of paramount importance in disease prevention. This has been rightly reflected by the concepts of 'Guru-Lagu vyadhita' where in, is clearly described the relative ponderance of mental strength over the disease which effectively results in good tolerance and sustainment, not only to the disease but, also determines excellence of response to therapeutic agents. Hence, it effectively curtails the disease and ensures an early and complete recovery.

Nidra is yet another factor that decides the well-being of an individual. Time again researches have proved the impact of good and timely sleep not only in maintenance of physiological processes going on in the body but also in longevity and immunity against diseases.

Prana bala, Mamsa bala, Roga bala, Vit bala are highlighted in pathological contexts especially as a measure of endurance and therapeutic sustenance. The decrease of Prana bala and Mamsa bala along with Agni bala is said to be an ominous representation, depicted as Arishtha lakshana.

In the context of Vishama jvara, the presence or absence of Pratyaneeka bala is described as a factor pivotal for its manifestation. Here the word Pratyaneeka, depicts the opposing factors such as Desha, Kala etc., which resist the Doshic aggravation and thereby disease manifestation. All the factors described previously under the term 'Bala' are also equally important in resisting either Dasha aggravation or the involvement of Dhatus and thereby in the prevention of the disease. The Santata jvara is said to manifest by strong Doshas beyond the capacity of opposing factors (Nishpratyaneeka) resulting in a continuous fever. The other varieties such as Satata, Anyedyushka etc., are characterized by relatively more potent opposing factors (Sapratyaneeka) and hence, the fever shows a periodicity.

Elsewhere in the text certain other concepts related to physiologically functioning Doshas such as Vata and Kapha, Agni, Retas are found to function harmoniously as Bala. Vata in normalcy is said to mould the body, assist all functional attributes such as the other two Doshas and also Agni, thereby maintaining the health. Kapha in normalcy due to its stabilizing function has been ascribed to Bala. Agni has to be considered not only as the capacity of digestion and metabolism but, also as the energy behind all the activities involving transformation. In the context of Virudha ahara, it is rightly said that the fully functional Agni can supersede the ill effects of any dietary indiscrepancy and thereby maintain health. The vitiation of Agni may be primary or secondary to Doshic aggravation and hence maintenance of Agni is elan vital for the maintenance of health.

The factors that promote Bala have been described in Charaka Shareera Sthana under 'Bala vridhikara bhavas' under which the Racial factors, Hereditary factors, Seasonal influences, Conceptual factors, Diet, Physical attributes, Homologousness, Psyche, Exercise and Age are all incorporated. Among these Racial, Hereditary and Genetic, Seasonal, Dietary factors along with Homologousness, Psyche, Exercise and Suitability of Age are of vital importance in the present immunological consideration in the context of Covid-19 pandemic.

### Conclusion

The concept of 'Bala' is quiet wide and incorporates the aspects of Vyadhikshamatva or immunity. The concept of Trividha bala is practically applicable and also useful in the present scenario of the global pandemic, the Covid-19. Overall a steady state of health could be maintained by incorporating the following guidelines described in Ayurveda-

- Maintain Healthy Diet (with regards to Agni factor)

- Maintain Healthy Life style including Exercise, Sleep
- Be Judicious to Decide and Discriminate
- Don't Fall prey to Greed and Lust
- Maintain Tranquility of MIND( Sadvritta/AcaraRasayana)
- Follow Dinacarya/Ritucarya
- Intake of Rasayana/ Urjaskara aushadhas

**References:**

1. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30985-5/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30985-5/fulltext)
2. <https://www.who.int/news-room/commentaries/detail/immunity-passports-in-the-context-of-covid-19>
3. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7175888/>
4. Acarya Agnivesha, Caraka Samhita, Edited by Vaidya Acarya Jadavaji Trikamji, Chaukambha Surbharati Prakashan,1998
5. Acarya Vagbhata, Ashtanga Hridaya, Edited by Pt.Hari Sadashiv Sastri Paradakara, Chaukambha Surbharati Prakashan,Varanasi,1997.

\*\*\*\*\*



# ALVA'S

## Education Foundation®

Moodubidire - 574 227, D.K., Karnataka, INDIA

### MEDICAL & PARA MEDICAL COURSES

(Under Rajiv Gandhi University of Health Sciences, Bangalore)

#### **B.A.M.S.**

Bachelor of Ayurveda  
Medicine & Surgery

#### **B.N.Y.S.**

Bachelor of Naturopathy  
& Yogic Sciences

#### **B.H.M.S.**

Bachelor of Homeopathic  
Medicine & Surgery

#### **B.P.T.**

Bachelor of Physiotherapy

#### **B.Sc. M.L.T.**

Bachelor of Science in  
Medical Lab. Technology

#### **B.Sc. Nursing**

**B.H.A.**  
Hospital Administration

#### **M.D. Ayurveda**

Shalya, Panchakarma,  
K.B. Prasoothi, Swasthavrita,  
Shalakyta Tantra, Kayachikitsa,  
Dravya Guna, Siddantha,  
Rachana, Agada, Roganidhana  
evam Vikriti Vijnana, Rasashashtra,  
Baishajya, Kriya Shareera

#### **M.D. Naturopathy**

Yoga & Naturopathy

#### **M.P.T.**

Physiotherapy

#### **M.Sc. M.L.T.**

Medical Laboratory Technology

#### **M.Sc. Nursing**

#### **M.H.A.**

Hospital Administration

#### **PB B.Sc. Nursing**

#### **G.N.M.**

General Nursing & Midwifery



For more details:

Ph: 93795 25826, 98807 48430, 87228 73696, 08258-261229

Website: [www.alvasayurveda.com](http://www.alvasayurveda.com), [www.alvasnursing.com](http://www.alvasnursing.com), [www.alvas.org](http://www.alvas.org)

email: [admission@alvas.org](mailto:admission@alvas.org)