

POSSIBLE CONTRIBUTION OF AYURVEDA IN NATIONAL HEALTH PROGRAMMES WSR TO RNTCP

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ABSTRACT

Healthcare continues to pose a major challenge for developing countries. Success of individual health programme remains overshadowed by the problems these nations face in 21st century. Developing nations have always had to contend with infectious diseases. Tuberculosis (TB) is one such disease, which continues to ravage vast area of country. Even though many measures have been taken through RNTCP (Revised National Tuberculosis Control Programme) to check the disease, all those remained in vain. To deal with these diseases, integrated system of approach is required. Ayurveda, being ancient system of medicine, clearly mentioned about such diseases. Charaka has quoted *Janapadodhwamsa* (Mass destruction) & its *Nidana* (Aetiology) as *Dushita* (Vitiated) *Vayu* (Air), *Jala* (Water), *Kala* (Time) & *Desha* (Region). Acharya Sushruta has mentioned *Aupasargika rogas* (communicable diseases) & their mode of transmission. Based on *Lakshanas* (symptoms), TB may be correlated with *Rajayakshma* as told by Charaka & *Shosha* by Sushruta. Measures of prevention such as *Dinacharya* (daily regimen), *Ritucarya* (seasonal regimen), *Sadvritta* (codes of conduct), & treatment principles, *Rasayana* (Rejuvenation therapy) can be used along with ATT (Anti-tubercular Treatment) to improve the quality of life of TB patients. So this article throws light on considerable measures of Ayurveda in prevention & control of TB.

Keywords: RNTCP, *Rajayakshma*, *Rasayana*, ATT

INTRODUCTION

Communicable diseases are caused by specific infectious agents or their toxic products. They arise through transmission of specific agent or its products from an infective person, animal or inanimate reservoir to a susceptible host, either directly or indirectly¹. Tuberculosis is one of the communicable diseases. India is the highest TB burden country in the world in terms of absolute number of incident

cases that occurs each year². Control of this disease is the reduction of disease incidence, prevalence, morbidity or mortality. Since India has become independent, several measures have been undertaken by the National Government to improve the health of the people. Prominent among these measures are the National Health Programmes, which have been launched by Central Government for the control or

eradication of communicable disease, improvement of environmental sanitation, raising the standards of nutrition, control of population & improving rural health³. RNTCP is one of the national health programme, started with the goal to prevent and control tuberculosis. Ayurveda though being an ancient system of medicine which has its origin 5000 years back, it clearly mentioned about such diseases. Charaka has quoted *Janapadodhwamsa* (Mass destruction) & its *Nidana* (Aetiology) as *Dushita* (Vitiated) *Vayu* (Air), *Jala* (Water), *Kala* (Time) & *Desha* (Region)⁴. In *Sushruta samhitha-Kushtanidana adhyaya*, description regarding mode of transmission of *Aupasargika rogas* (Communicable diseases) can be seen⁵. Diseases like *Rajayakshma* told by Charaka & *Shosha* by Sushruta can be considered as TB based on *Lakshanas*. Along with these we can also find references for both prevention & treatment of such diseases. It prescribes the theory & practice of maintenance of the public & private health. Ayurveda mainly emphasizes on following a proper *Dinacharya* (Daily regimen), *Ritucharya* (Seasonal regimen), and *Sadvritta* (Codes of conducts). A more interesting part of Ayurveda is that it discusses treatment along with four guidelines: *Ahara* (Diet correction), *Vihara* (Activity correction), *Achara* (Lifestyle correction), & *Vichara* (Thought process correction).

Review on disease.

Tuberculosis

Tuberculosis is a chronic infectious disease caused by *Mycobacterium tuberculosis*. It spreads by inhaling the bacterium in the droplets coughed out by sputum positive infected person. Anyone can catch TB but those at particular risk are those who are in close contact with infectious cases, immune-compromised & malnourished persons. Typical symptoms of pulmonary TB include chronic cough, weight loss, intermittent fever, night sweats & coughing blood. TB in parts other than the lungs has symptoms which depends on site, may be accompanied by intermittent fever & weight loss^{6,7}.

Rajayakshma

Rajayakshma is a *Kapha pradhana tridoshaja vyadhi* which manifests due to indulgence in *Nidanas* like *Ayatabalam arambham* (Over exertion), *Vega sandarana* (Suppression of natural urges), *Kshaya* (Depletion of tissue elements) due to anxiety, fear, grief, excess intake or less & *Vishamashana* (Irregular dieting). Symptoms may exhibit either in the form of *Trirupa* [*Amsaparshwa abhita* (Burning sensation in flanks), *Karapada santapa* (Burning sensation of feet and sole), *Jwara* (Fever)], *Shadrupa* [*Kasa* (Cough), *Jwara* (Fever), *Parshwashoola* (Pain in the sides of chest), *Swarabheda* (Hoarseness of voice), *Varchogada* (Diarrhea), *Aruchi* (Anorexia)], *Ekadasha rupa* [*Kasa* (Cough), *Amsatapa* (Burning sensation in shoulders), *Vaiswarya* (Impairment of voice), *Jwara* (Fever), *Parshwa ruja* (Pain in the sides of chest), *Shiroruja* (Headache), *Rakta chardana* (Hemoptysis), *Kapha chardana* (Spitting of phlegm), *Shwasa* (Dyspnea), *Varchogada* (Diarrhea), *Aruchi* (Anorexia)]⁸.

Review on RNTCP

National Tuberculosis Programme (NTP) was started in the year 1962. However, the treatment success rates were unacceptably low and the death and defaults rates remained high. In order to overcome these lacunae, the Revised National TB Control Programme was formulated, adopted the internationally recommended Directly Observed Treatment Short-course (DOTS)⁹. It was started with the objective, Achievement of at least 85% of cure rate, Augmentation of case finding to detect at least 70% of estimated cases. Patients having symptoms of TB are subjected for sputum smear, X-ray chest, CBNAAT (Cartridge Based Nucleic Acid Amplification Test) as per the need. Once the diagnosis is done as per the diagnostic algorithm, TB patients will be started with anti-tubercular treatment. Category I (new sputum positive & negative cases) consists of 6 months of course which include IP (Intensive phase)-2{H (Isoniazid), R (Rifampicin), E (Ethambutol), Z (Pyrazinamide)} +CP (Continuation

phase) - 4 (HRE). Category II (relapsed, default, failure cases) consists of 7 months of course which include IP-3(HREZ) & Streptomycin for 2 months +CP- 4(HRE)¹⁰.

Possible contributions through Ayurveda

Prevention of tuberculosis can be done at four levels

- 1) Primordial prevention
- 2) Primary prevention
- 3) Secondary prevention
- 4) Tertiary prevention

1) Primordial prevention:

Prevention of the emergence or development of risk factors in countries or population groups in which they have not yet appeared¹¹. Following measures may be helpful.

i) To increase immunity

a) *Prashana* (Feeding) of *Madhu* (Honey), *Ghrita* (Ghee), *Ananta* (Gold) to *Navajatha shishu* (New born)¹²

b) *Nithya rasayana*: In the context of *Achara rasayana* (Behavioural conduct), daily intake of *Ksheera* (Milk) & *Ghrita* (Ghee) is mentioned¹³. It acts as *Rasayana*

c) *Ritu harithaki* (Seasonal Haritaki): For the purpose of *Rasayana*, *Haritaki* (*Terminalia chebula*) is taken along with different ingredients.¹⁴

Table 1 shows combination of *Haritaki* in different *Ritus*.

Table 1:

Ritu	Combination
<i>Shishira ritu</i> (Late winter)	<i>Haritaki</i> (<i>Terminalia chebula</i>) + <i>Pippali</i> (Long pepper)
<i>Vasanta ritu</i> (Spring)	<i>Haritaki</i> (<i>Terminalia chebula</i>) + <i>Madhu</i> (Honey)
<i>Greeshma ritu</i> (Summer)	<i>Haritaki</i> (<i>Terminalia chebula</i>) + <i>Guda</i> (Jaggery)
<i>Varsha ritu</i> (Rainy season)	<i>Haritaki</i> (<i>Terminalia chebula</i>) + <i>Saindhava</i> (Rock salt)
<i>Sharat ritu</i> (Autumn)	<i>Haritaki</i> (<i>Terminalia chebula</i>) + <i>Sharkara</i> (Sugar)
<i>Hemanta ritu</i> (Early winter)	<i>Haritaki</i> (<i>Terminalia chebula</i>) + <i>Shunti</i> (Ginger)

Taking with different ingredients as per *Ritu* balances *Doshas*, hence prevents occurrence of disease

ii) To prevent malnutrition

a) *Nitya sevaniya ahara*^{15,16} means which has to be taken daily. Nutritious food is needed to sustain life & activity. Daily consumption of *Nitya*

sevaniya ahara does promotion of health & prevention of disease. It acts as balanced diet. Table 2 shows macro & micro nutrients present in *Nitya sevaniya ahara*.

Table 2:

Carbohydrates	<i>Shashtika shali</i> (Rice) <i>Yava</i> (Barley) <i>Godhuma</i> (Wheat)
Proteins	<i>Mudga</i> (Green gram) <i>Jangala mamsa</i> (Meat of arid animals)
Fat	<i>Ghrita</i> (Ghee) <i>Ksheera</i> (Milk)
Vitamins	<i>Amalaki</i> (<i>Embelica officinalis</i>) <i>Draksha</i> (<i>Vitis vinifera</i>) <i>Dadima</i> (<i>Punica granatum</i>)
Minerals	<i>Triphala</i> (<i>Haritaki</i> , <i>Vibhitaki</i> , <i>Amalaki</i>)
Water	<i>Antariksha jala</i> (Rain water)

b) *Shadrassa bhojana* (Intake of all 6 tastes): Intake of all the six *Rasas* (Tastes) i.e. sweet, sour, salt, bitter, pungent & astringent is considered as superior and wholesome. It is best among strength enhancing factors¹⁷.

c) *Kala bhojana* (Timely intake of food): One should not take food within three hours (1 *Yama*) of consumption of food as it leads to *Rasodvega* & one should not fast more than six hours (2 *Yama*) as it leads to loss of strength¹⁸. Intake of food at proper time is best for maintenance of positive health¹⁷.

2) Primary prevention

Action taken prior to the onset of disease, which removes possibility that a disease will ever occur¹¹. Following measures can be done

i) To prevent droplet spread

a) *Vayu shodhana* (Purification of air): *Dhoopana* with *Laksha* (*Lacifera lacca*), *Haridra* (*Curcuma longa*), *Ativisha* (*Aconitum heterophyllum*), *Haritaki* (*Terminalia chebula*), *Musta* (*Cyperus rotundus*), *Ela* (*Elettaria cardamomum*), *Kusta* (*Saussurea lappa*) & *Priyangu* (*Callicarpa macrophylla*)¹⁹

b) *Havana*: Sacrifice to purify air with the drugs like *Karpura* (*Cinnamomum camphor*), *Devadaru* (*Cedrus deodara*), *Chandana* (*Santalum album*), *Sariva* (*Hemidesmus indicus*), *Sarja* (*Vateria indica*), *Agaru* (*Aquillaria agallocha*), *Nimba* (*Azadirachta indica*), *Somaraji* (*Psoralea corylifolia*), *Gandhaka* (*Sulphur*), *Guggulu* (*Commiphora mukul*)¹⁹

ii) *Nidana parivarjana*

Avoiding the *Nidanas* (Aetiology) of *Rajayakshma* by following

a) *Achara rasayana* (Behavioural conduct)¹³

b) *Asta-ahara vidhi vishesha ayatana* (Rules for taking food)²⁰

c) *Sadvritta* (Codes of conduct): One should not yawn, sneeze, and laugh without covering the mouth. One should not let out mucous and nasal excreta at the time other than cleaning of face or bath.²¹

iii) For Health promotion

a) *Dinacharya* (Daily regimen): Daily routine carried out from morning to evening, beginning with getting up from bed till one goes to his bed in the night²². A daily routine is absolutely necessary to bring radical change in body, mind & consciousness. Routine helps to establish the balance in one's constitution.

b) *Ritucharya* (Seasonal regimen): Knowing the suitable diet and regimen for every season and practicing accordingly will enhance the *Bala* (Strength) and *Varna* (Lustre) of the person²³.

3) Secondary prevention

Action which halts the progression of a disease at its incipient stage & prevents complications¹¹. Following measures can be done

Based on *Lakshanas* (Symptoms) Tuberculosis may be correlated to *Rajayakshma*.

i) *Chikitsa* (Treatment) as per *samhita*: If *Doshas* (Morbid matters) are in *Adhika matra* (Excess quantity) then *Snehana* (Oleation), *Swedana* (Sudation) followed by *Vamana* (Emesis) & *Virechana* (Purgation). Medicines which are used for this should not do *karshana*⁸.

ii) *Bahir parimarjana chikitsa* (Exeternal therapies): As *Rajayakshma* is a complex set of symptoms, *Shiroruja* (Headache), *Parshwashoola* (Pain in flanks) are commonly seen in these patients. Different external therapies like *Alepa* (Topical application), *Abhyanga* (Massage) & *Pariseka* (Pouring of medicated liquid) are mentioned for these *Lakshanas*⁸. Instead of taking oral medicines for such complaints, *Bahirparimarjana chikitsa* (Exeternal therapies) may be adopted.

iii) Following *Pathya apathy*: In general *Shashtika shali* (Rice), *Godhuma* (Wheat), *Yava* (Barley), *Mudga* (Green gram), *Jangala pashu pakshi mamsa* (Meat of arid animals & birds) are *Pathya* for *Rajayakshma* patients⁸.

Pathya apathy for different *Lakshnasa* of *Rajayakshma* are as follows⁸

For *Pinasa* (Rhinitis): *Yusha* (Soup) Prepared with meat of goat, added with *Yava* (Barley), *Kulattha* (Horse gram), *Nagara* (*Zingiber officinale*), *Dadima*

(*Punica granatum*), *Amalaka* (*Embelica officinalis*) & *Ghrita* (Ghee).

Yusha (Soup) prepared with *Mulaka* (Radish) & *Kulattha* (Horse gram)

For Shira & Parshwashula (Pain in head & flanks), Kasa (Cough), Shwasa (Difficulty in breathing): Frequent intake of *Ghrita* (Ghee) after food

For Kaphapraseka: *Yavagu* (Gruel) prepared with *Vamaka dravyas* (Emetic drugs) & *Ghrita* (Ghee).

For Atisara (Diarrhoea): *Yavagu* (Gruel) prepared with *Changeri* (*Oxalis corniculata*),

Takra (Buttermilk) & *Dadima* (*Punica granatum*)

Manda (Rice water) along with *Jambu* (*Syzygium cumini*), *Amra* (*Mangifera indica*), *Bilva*

(*Aegle marmelos*), *Kapittha* (*Limonia acidissima*) & *Nagara* (*Zingiber officinale*)

iv) Naimittika rasayana (Disease specific rasayana): *Rasayanas* which are *Balya* (strengthening) & *Kshayanashaka* can be used. Following are few examples possessing such properties- *Chyavana prasha*²⁴, *Amalaki rasayana*²⁴, *Haritaki rasayana*²⁴, *Nagabala rasayana*²⁴, *Pippali rasayana*²⁴, *Amalaka ghrita*²⁴.

4) Tertiary prevention

All measures available to reduce or limit impairments & disabilities, minimize suffering caused by existing departure from good health & to promote the patient's adjustment to irremediable conditions. Following measures can be adopted.

i) To prevent drug induced hepatotoxicity: Use of hepatoprotective drugs like *Guduchi* (*Tinospora cordifolia*), *Katuki* (*Picrorhiza kuroa*), *Rohitaka* (*Techoma undulata*), *Bhringaraja* (*Eclipta alba*), *Sharapunka* (*Tephrosia purpurea* pers.), *Pippali*, *Punarnava* (*Boerhavia diffusa*), *Bhumi amalaki* (*Phyllanthus amaris*), *Daruharidra* (*Barberis aristata*)²⁵.

ii) To prevent vitamin B6 deficiency: *Mamsa* prayoga i.e. *Mamsa* of *Barhi* (Peacock), *Tittiri* (Partridge), *Hamsa* (Swan), *Aja* (Goat), *Ushtra* (Camel), *Go* (Cow), *Mahisha* (Buffalo).

DISCUSSION

TB is still a major threat to health globally. Although RNTCP guideline does exist and activities are in place, these need to be strengthened at all levels. Engagement and co-ordination between modern and Ayurvedic system of medicine is required to bring up solutions in public health problems and to boost health care delivery system in India. Following Ayurvedic principles will prevent the diseases at every levels of prevention.

Primordial prevention

Tackling of risk factors such as low immunity and malnutrition will prevent occurrence of TB to certain extent. *Prashana* (Feeding) of *Ghrita* (Ghee), *Madhu* (Honey) & *Swarna* (Gold) to the new born babies for the benefits of improving intellect, physical strength, immunity & life span. Taking *Haritaki* with different ingredients as per *Ritu* (Season) balances *Doshas*, hence prevents occurrence of disease. Both these boost up the immunity. The major causes of illness and disability in which diet & nutrition play an important role. Hence eating nutritive food is vital for good health & wellbeing. The nutritive value of *Nitya sevaniya ahara* fulfils the criteria of balanced diet. So including *Nityasevaniya ahara* in our diet provides required nutrition & helps to fight against disease. Intake of all the *Rasas* enhances the strength. Timely taking of food is a way to attain positive health.

Primary prevention

TB is one of the air born disease which spreads through droplet generated by infected person. Thus it carries a lot of significance to disinfect the area where we reside. *Dhoopana* & *Havana* with various drugs having antimicrobial activity anticipates the spread of TB bacillus. *Nidana parivarjana* or avoiding the cause is considered as the first line of treatment in Ayurveda. *Nidanas* of *Rajyakshma* such as over exertion, suppression of natural urges can be avoided by following *Achara rasayana*. As not following the *Asta ahara vidhi vishesha ayatana* is also one of the *Nidana* for *rajyakshma*, it should be adopted to prevent the diseases. *Dinacharya* (daily

regimen) aims at providing comprehensive body-mind health through a well maintained daily regimen. A proper routine can assist digestion, absorption and assimilation as well as bring out peace, discipline, happiness & longevity to the individual. Following the *Ritucharya* (Seasonal regimen) and doing *Ritu shodhana* i.e. periodic removal of accumulated *Doshas* on seasonal basis detoxifies the body, strengthens immune system, restore balance & well-being.

Secondary prevention

Following the Ayurvedic line of management of disease along with modern medicine enhances recovery rate. Instead of taking medicine for the symptoms like headache, cold etc. which are commonly seen in TB patients, adopting *Bahir parimarjana chikitsa* (External therapy) helps to reduce the pill burden. Even hundreds of medicines cannot cure a disease in absence of wholesome diet. Hence following diet regimen carries a significant importance. Along with above measures, *Rasayana prayoga* will give immunity, strength & provides relief from symptoms.

A study conducted (Sathya N Dorenal *et al*) on *Bringarajasava* as an adjunct to DOTS showed improved weight gain in TB patients & regulatory activity on TNF- α .

Tertiary prevention

Taking Anti-tubercular drugs for longer duration may damage the liver. Hence use of hepatoprotective drugs in the form of *Swarasa* (Fresh juice), *Kashaya* (Decoction) etc. prevents drug-induced hepatotoxicity. Vitamin B6 deficiency is most common due to administration of isoniazid & pyrazinamide during treatment of Tuberculosis. Intake of meat during ATT tackles Vitamin B6 deficiency & also provides strength to the patient.

CONCLUSION

Over the decades public health is able to deliver best of its capacity to bring changes in various health indicators. Many measures including National Health Programmes were started to improve the health of the people. Despite this, TB is still a major threat to

health globally. There are more than a million ‘missing’ cases every year that are not notified and most remain either undiagnosed or unaccountably and inadequately diagnosed and treated in the private sector. Although integrated TB/HIV mechanism & guideline do exist and activities are in place through RNTCP, these need to be strengthened at all levels. Slow progress in preventing the disease may in part be due to stigma associated with TB. Eminent way to reduce freight of TB is through integrated approach. Though there are no such effective antimicrobial Ayurvedic drugs proven to cure TB, With Ayurvedic principles strength, immunity & quality of life can be improved. Thus preventive & curative principles of Ayurveda can act as adjunct/supportive therapy along with ATT to enhance its effect & to prevent further complications.

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