

**AUSHADH SEVAN KAAL IN AYURVEDA AND MODERN SCIENCE****Kotawala Y. S.<sup>1\*</sup> and Shukla D. V.<sup>2</sup>**

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**ABSTRACT**

According to Ayurveda Bhaishajya kaal (time of drug administration) is an important principle to be considered while treating a disease. In Ayurveda many Acharya has given different Bhaishajya kaal according to the doshas, diseases, different conditions of the body and different preparations (swaras, kalka, kwath). According to the modern medicine, it is called drug chronotherapy. It advocates syncing your medication regimen with your circadian rhythm. If daily pills at the right time can help you maximise their benefits and avoid dangerous interactions.while treating a disease success can be achieved only when there is proper combination of desha(region), kaala(time), pramana

(dosage), satmya (wholesomeness), asatmya (unwholesomeness), pathya (useful) & apathya (harmful). Among these seven most important factors, kaala acquires second position, which reflects the importance of kaala in chikitsa. The above paper focus on Bhaishajya kaal according to Ayurveda and modern medicine.

**KEYWORDS:** Aushadh Sevan Kaal, Chronotherapy.

**INTRODUCTION**

Ayurveda, the most ancient medical science, has given *Trisutras*, namely, *Hetu* (causative factor), *Linga* (signs and symptoms), and *Aushadha* (treatment). The last part of this trio has been given equal importance as the former two. Our Science has always believed that there will be rhythmic changes in the predominance of bodily doshas with time. Hence when a medicine is given it is equally important to take into consideration Vaya, Agni Bala, Rogi bala, Roga bala, Ritu etc. Bhaishajya kala are the essential tools for administration of

Aushada, negligence may lead to the grave deficit in the treatment. Apart from this the time of administration of medicine is equally important as the timed dosage is surely going to improve the treatment outcome.

The relation between Kaala and Aushada is well established in our classics by all the Acharyas. The relation has been neglected nowadays, specially while administering the medicine. Such negligence may be one of the therapy, as the Aushadha Dravya fails to show its complete effect. In Ayurveda Bhaishajya Kaala are described in relation to food, they are meant for Shamana Chikitsa only and the root of administration to all kala is oral. The pharmacokinetics and pharmacodynamics of an Ayurvedic medication is directly affected by biological activities of the body. The effectiveness of many drugs depends on the dosage administration time. In Ayurveda it has mentioned that predictable variations in bodily functions during day, season and age alters the severity of disease symptoms, results of diagnostic test and effects of other therapies.

Different Aushada sevana kalas are mentioned by different Acharyas which are highlighted below

Charaka	Sushruta	Ashtang hridayam	Sharangadhar	Ashtang sangraha
Abhakta	Abhakta	Abhakta	Suryodaya	Abhakta
Prag-bhakta 1.Before lunch 2. Before dinner	Prag-bhakta	Prag-bhakta	Prag-bhakta (before lunch)	Prag-bhakta
Madhya-bhakta	Madhya-bhakta	Madhta-bhakta	-	Madhya-bhakta
Adhobhakta 1.After lunch 2.After dinner	Adhobhakta	Adhobhakta	Adhobhakta (after dinner)	Adhobhakta
Sabhakta	Sabhakta	Sabhakta	-	Sabhakta
-	Antarbhakta	-	-	Antarbhakta
Samudga	Samudga	Samudga	-	Samudga
Muhur-Muhu	Muhur-Muhu	Muhur-Muhu	Muhur-Muhu	Muhur-Muhu
Sagrassa	Sagrassa	Sagrassa	-	Sagrassa
Grasantara	Grasantara	Grasantara	-	Grasantara
-		Nishi	Nishi	Nishi
10	10	10	5	11

Aushadh sevana kaal can be correlated with the Chronotherapy in modern science, it means the administration of medication or treatment in coordination with the bodies circadian rhythm to maximize effectiveness and minimize side effects. Circadian (circa-about; dies, day or about 24 hours) oscillations in the biological, physiological and behavioral functions of an organism with a periodicity of 24hours. Chronotherapy is used in various clinical fields

such as the treatment of asthma, cancer, hypertension and multiple types of depression, among others seasonal affective disorders and bipolar disorders. The area in which chronotherapy is most advance (drug chronotherapy) for the most part does not involve new medicines but used in old ones differently. Revising the dosing schedule, reformulating a drug so its release into the blood stream is delayed, using programmable pumps that deliver medicine at precise intervals are some of the simple changes that may reap enormous benefits.

## DISCUSSION

### Description of Individual *Bhaishajya Kaala*

#### Niranna (Abhakta)

*Abhakta* means administration of *Aushadha* alone or when eaten food has been digested properly.

*Abhakta*, *Ananna*, *Nirbhukta*, *Suryodaye Jate* are used as synonyms.

*Sushruta* says medicine becomes very powerfull in the absence of food and so cures diseases without doubt. *Chakrapani* says *Abhakta* means, it should be before food in the morning, Food should be administered only after the medicine is completely digested. The action of the medicine administered during this *Kaala* is enhanced due to the empty stomach. Hence, the physician should see the strength of disease and patient. If both are strong this *Kaala* should be selected.

Aushadh sevan kaal	Administration time	Indications	Contraindication
Abhakta	Before taking any food on empty stomach	Disease and diseased both having good strength <i>Pancha Vidha Kashaya Kalpanas</i> (five basic formulations): They are heavy and need strong <i>Agni</i> to digest them <i>Lekhanartha</i> (scraping) and <i>Utklishta Kapha Pitta Kapha Udreka Avastha Gata Kaala</i>	- children, aged, women etc., who cannot withstand the potency of the medicine, administered in this <i>Kaala</i> . - persons of soft body consuming medicine in this manner become tired and loose strength also

#### Pragbhakta

*Prak-bhojana*, *Annadau*, *Prag-bhakta*, *Bhojanagre*, *Bhuktadau*, *Poorvabhaktasya* are used synonymously to indicate this *Kaala*.

Aushadh sevan kaal	Administration kaal	Indications
Pragbhakta	before meals (atleast before 10-30 minutes so that medicine can get absorbed)	<ul style="list-style-type: none"> <li>- <i>Apana Vata Vikruti Gudagata</i> (situated in anus) <i>Vata</i>, Aged, children, <i>Bhiru</i> (panic), <i>Krishanga</i> (emaciated), weak</li> <li>- For strengthening lower part of the body, diseases of lower half of the body</li> <li>- Obesity</li> </ul>

Medicine taken in pragbhakta kaal, it become quickly digested, does not harm the strength of the body, being enveloped by food, it does not come out of the mouth; hence medicine should be given before food for the aged, children, fearful, emaciated and women. It destroys the *Doshas* situated in *Amashaya* (stomach).

### Madhya Bhakta

Administration of medicine in between the food is *Madhyabhakt*. The synonyms *Madhye Bhaktam*, *Madhye*, *Madhya Bhaktam*, *Madhya Bhojana* give the same meaning.

Aushadh sevan kaal	Administration time	Indications
Madhyabhakat	Middle of the meal	<ul style="list-style-type: none"> <li>- <i>Samana Vata Vikruti</i></li> <li>- <i>Koshtagata Vyadhis</i></li> <li>- <i>Paittika Vyadhis</i></li> <li>- <i>Agni Udeeranartha</i> in <i>Mandagni</i></li> </ul>

The medicine administered during this *Kaala* acts on *Samana Vata*. Once this *Samana Vata* is corrected, *Agni* or *Pachaka* starts functioning properly. The *Pachaka Pitta* nourishes all the *Pittas*. If *Pachaka Pitta* is corrected all the other *Pittas* will also function normally. Hence, it is indicated in *Paittika Vyadhis*. Medicine consumed in the middle of the meal cures diseases of the middle part of the body, by not spreading out of the middle part (kosta- elimentary canal).

### Adhobhaktam

**Synonyms:** *Pratah Ashasya*, *Pashchatbhakta*, *Ante*, *Adhaha*.

Aushadh sevan kaal	Administration time	Indications
Adhobhakta	After food	<ul style="list-style-type: none"> <li>- <i>Vyana Vata Vikrut</i></li> <li>- For strengthening upper part of the body</li> <li>- Diseases of chest, throat, and head</li> <li>- Diseases of upper half of the body</li> </ul>

Medicine consumed soon after taking meals cures different diseases of the upper parts of the body (head & neck) and bestows strength.

**This Kaala is divided in two**

*Pratah Bhojana Kaala* – indicated for *Vyana Vata Vikruti*

*Sayam Bhojana Kaala* – indicated for *Udaan Vata Vikruti*

**Sabhakta:** *Bhakta Samyuktam, Sannam, and Samabhaktam* are identical to each other.

Aushadh sevan kaal	Administration time	Indications
Sabhakta	Medicine taken along with food or mixing is done either with prepared food or during preparation of food	<ul style="list-style-type: none"> <li>- <i>Aruchi</i></li> <li>- <i>children, weak, Stree (ladies), Vriddha, Sukumara (mild), Ksheena</i></li> <li>- <i>who hate taking medicine</i></li> <li>- <i>To protect Bala and Sarvaangagata Rogas.</i></li> </ul>

In *Mandagni* (loss of appetite), *Aruchi* – food is processed with *Aushadha* and given. As the *Teekshnata*, strong odour, bad taste of *Aushadha* are reduced, it is used for administration in women, children, aged, persons with less strength, and one who hates *Aushadha*.

Indication for this *Kaala* is not mentioned for any *Dosha*, but indicated in *Sarvanga* (complete body) *Roga* and *Kshata Ksheena* (emaciated). *Aushadha* along with *Ahara* will be digested and *Rasa* is formed, which will be circulated all over the body with the help of *Vyana Vata*. Medicine consumed between two morsels is cordial, bestows strength to the mind, kindles digestion and is always suitable.

**Antarabhakta:** *Bhaktayormadhye, Antarabhaktam* and *Antarbhaktam* are used synonymously.

Aushadh sevan kaal	Administration time	Indications
Antarbhakta	Between two meals	<ul style="list-style-type: none"> <li>- <i>Hridya, Deepaka (kindling digestive fire), Deeptagni Purush</i> suffering from <i>Vyan Vayu</i></li> <li>- It acts over <i>Udana</i>, which is seated in <i>Hridaya</i>, it gives strength to the <i>Manas</i> (mind).</li> </ul>

The administration of food in between two meals is called *Antarabhakta*, means after digestion of food taken in afternoon, *Aushadha* is administered. Once *Aushadha* is digested, evening meals is taken. Similar thing is followed in case of night and morning food.

In this *Kaala Ahaara* and *Aushadha Jeerna Lakshana* play an important role. The first *Antarabhakta* is during daytime whereas next is one *Yama* followed by the digestion of evening food as opined by Indu, which is same as that of *Nishi* (night).

### Sagrasa – Grasantara

*Sagrasa* means *Aushadha* mixed along with each bolus of food, also known as *Grase-Grase*.

*Grasantara* means administration of *Aushadha* in between each bolus of food and is known as *Kavalantare*.

Aushadh sevan kaal	Administration time	Indications
Sagrasa	Mixed with each morsel of food	- indicated in <i>Prana Vata Dushti</i>
Grasantara	In between morsels	- <i>Vajeekaranartha</i> (increasing vigor) - <i>Agni Sandeepanartha</i>

*Grasa*: can be used where the form of medicine is *Churna* (powder), *Vataka* (tablet), *Leha* (confections). *Churna* should be administered in this *Kaala* to increase *Agni*, it may be due to *Rukshata* (dryness).

*Grasantara*: this is used when one wants to administer the *Vamaneeya Dhumapana*.

Medicines in the form of powders, which are to be given to persons of weak digestion to increase digestive power and which are aphrodisiac should be given mixed with each morsel. Drugs to produce vomiting by inhaling their smoke, in diseases like dyspnoea etc. and licturaries(confection) whose properties are known clearly.

### Samudga

*Samudga* refers to the administration of *Aushadha* both before and after food.

Aushadh sevan kaal	Administration time	Indications
Samudga	Both at the beginning and also end of the meal	- <i>Hikka Roga</i> (hiccough) - <i>Kampa</i> (tremors), <i>Akshepa</i> (convulsions) - <i>Urdhva Kayagata Vikaras</i> - <i>Pravisruta</i> (spreaded) <i>Dosha-Urdhwa</i> , and <i>Adha Visruta Dosha</i>

It is also useful when the form of medicine is *Pana* (liquid), *Navana* (administered through nostrils), *Avaleha* (confections). This method is best to mitigate the doshas which have spread in both ways.

*Dalhana* stresses on the word 'Peeyate' stating that *Aushadha* should be in liquid form so that food will be put in a nutshell.

### Muhurmuhu

*Muhurmuhu* is administering the medicine again and again, *Aushadha* is repeatedly taken with or without food.

Aushadh sevan kaal	Administration time	Indications
Muhurmuhu	Again and again either with food or without food	<ul style="list-style-type: none"> <li>- <i>Shwasa</i> (dyspnoea)</li> <li>- <i>Kasa</i> (cough).</li> <li>- <i>Trishna</i> (thirst),</li> <li>- <i>Hikka</i></li> <li>- <i>Chhardi</i> (vomiting),</li> <li>- <i>Visha</i> (poison),</li> <li>- <i>Swarabhanga</i> (hoarseness of voice).</li> </ul>

### This Kaala can be broadly divided in two

1. Abhakta Muhurmuhu
2. Sabhakta Muhurmuhu

The indication of with or without food may have been chosen by considering *Bala* of the patient. This *Kaala* is indicated in *Shwasa*, *Kasa*, *Trishna*, *Hikka*, *Chhardi* and *Visha* where continuous *Vegas* are produced. Hence *Aushadha* is administered repeatedly so that it can maintain its effect throughout.

**Nishi:** Synonyms *Swapnakale*, *Ratre*.

Aushadh sevan kaal	Administration time	Indications
Nishi	At night or at the time of sleep	<i>Urdhwajatrugata Vikara</i> (diseases above the neck)

*Aushadha* should be administered at the time of sleep. According to Ayurveda one should go to sleep after the digestion of the evening food. Hence medicine should be administered after the digestion of evening food. Thus this becomes second *Antara Bhakta* according to *Indu*, and it is indicated in *Urdhwa Jatru Gata Vikaras*. *Urdhwajatru* is the site of *Prana Vata*. Thus medicine administered in this *Kaala* acts over *Prana Vata*.

According to modern science the effectiveness of many drugs varies depending on the dosage administration time associated with 24 hours biological rhythm under the control of circadian

clock. Circadian rhythms are self-sustaining endogenous oscillations occurring in a period of 24 hours. The circadian rhythms are related to the normal sleep-wake cycle. These rhythms are controlled by Suprachiasmatic nuclei (SCN) that are situated in the hypothalamus and the pineal gland. This master clock network regulates the circadian clocks located in cells, tissues and organ-systems. The chronopharmacologic approaches tend to reduce the side effects and to make the drug more bio-available. The conventional homeostatic approach is replaced by the proper study of Chronopharmacology. The Chronopharmacological principle is used in the therapy of Myocardial Infarction, diabetes, hypertension, bronchial asthma, arthritis, hypercholesterolemia etc.

Disease	Circadian rhythm and manifestations of clinical diseases	Drug chronotherapy treatment
Allergic rhinitis	Worse in morning upon rising than during the day	Once daily non-sedating anti-histamine (like chlorpheniramine 10-20mg) by giving it before bed time to control overnight exacerbations and during sleep Morning oral corticosteroid therapy for severe allergic rhinitis
Peptic ulcers	Pain typically occurs after stomach emptying following day time meals in the very early morning disrupting sleep	Once daily given conventional H <sub>2</sub> blockers (Ranitidine, cimetidine, famotidine) are given at evening time
Stroke, Myocardial infarction, acute cardiac arrest, Hypertension	Onset early morning due to release of catecholamine, cortisol, increase in platelet aggregation, vascular tone, heart rate surge	Delivered drug in high concentration during great need <ul style="list-style-type: none"> <li>• ACE inhibitors, Nifedipine, Amlodipine – at night time</li> <li>• Except Atorvastatin all 3-hydroxy-3-methylglutaryl coenzyme A (HMG-CoA) reductase inhibitors are administered between the evening meals and sleep</li> <li>• Aspirin at bed time-dosing best for preventing pregnancy induced hypertension and pre-eclampsia</li> </ul>
Cancer	Cancer cells Duration of the phase of cell cycle Cell proliferation rate	Cancer drug administered more in night time, because cancer cells divide more in night time but not all, treatment with 6-mercaptopurine and methotrexate, evening dose given to patient Colorectal cancer- oxaliplatin is given in during day time and fluorouracil at night
Asthma	Exacerbation more common during few hours prior to awakening	<ul style="list-style-type: none"> <li>• Single daily dose of inhaled corticosteroid, administered at 5:30pm rather than 8am, was nearly as effective as four doses a day</li> <li>• Oral Prednisolone is more effective when administered at 3pm rather than 8am</li> <li>• Theophylline should be given at night to avoid toxic levels during the day</li> </ul>

Osteoarthritis	Pain is less in morning and more at night	Ibuprofen(NSAIDs) should be given around the noon or mid afternoon
Rheumatoid arthritis	Pain usually peak in the morning and decrease as the day wears on	
CNS		<ul style="list-style-type: none"> <li>• Chlorpromazine would be most effective in producing sedative and antipsychotic effects when administered at midnight and immediately after rising, respectively</li> <li>• For Haloperidol administration in the evening would be best for obtaining either sedative or antipsychotic effect</li> </ul>
Perforation of gastric or duodenal ulcers	On set are more common at night	Administration of these drugs at bed time is more effective. Nocturnal administration not only reduces acid secretion more effectively but also promotes ulcer healing and reduces ulcer recurrence

## CONCLUSION

Although much importance has been granted in the academic study of chronotropy it still remains largely out of use in clinical practice. Ayurvedic practice is much more oriented on the time of administration of drug. Clinically the importance of Aushadha Sevan Kaal cannot be stressed more, which if improper; the medicine, diet all are for naught.

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