

Time Of Drug Administration W.S.R. To Bhaishajya Kala in Sharangadhar Samhita

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ABSTRACT: Ancient knowledge is abundant in the traditional ayurvedic books. They are educated on the etiopathogenesis of disease, the applications of medicinal plants, and their significance on the time of medicine delivery. It is an important factor of pharmacological studies. Bhaishajya kala is meant for Proper time of drug administration. Chikitsa is entirely dependent on the four variables known as Chikitsa Chatuspada (Four factors need to manage a disease). Dravya (drugs) is one of the four elements that is thought to be a major cause. The Bhaishajya kala primarily depends on Roga Bala (disease stage), Rogi Bala (patient stage), Dosh (doshik types), Dushya (body tissues affected by doshas), kala (time), Agni Bala (digestive ability), and numerous other parameters including age, drug-food interaction, and drug-drug interaction. The accurate understanding of these elements is required for drug effect on the body. This article's primary goal is to investigate the use of drugs in various historic and modern times.

Materials and Methodology: All the literary material collected from various articles, journals and classical as well as modern text.

Keywords: Ayurveda, Chikitsa, Trisutra , Bhaishajya kaala

INTRODUCTION:

Ayurveda is the traditional, ancient Indian system of health science. Its name literally means, "life knowledge". Ayurveda is that which deals with good, bad, happy, unhappy life, its promoters and non-promoter's measurement and nature ¹. Mind, self and body-these three make a tripod on which the living word stands².The *Ayurvedic* method of holistic healthcare emphasize balancing the body, mind, and spirit to treat and prevent disease. Ayurveda has three main modules of treatment or ayurveda divides it into three main categories in order to treat diseases. various patients or diseases. There are three parts of *Ayurveda* collectively known as *Trisutra*. *Ayurveda* provides knowledge of aetiology, symptomatology and therapeutics ³.

Hetu linga ausadha jnanam swastha atura parayanam (Ca. Su. 1) ⁴

1. *Hetu* - causes or etiology
2. *Linga* - Sign and symptoms
3. *Aushadha* - Medicine or treatment

In *ayurveda*, the *trisutra* consists of three modules: the aetiology, the signs and symptoms, and the cure or management of the ailment. *Aushadha* is one of the three modules that make up *ayurvedic* management, or *trisutra*. Four components, referred to as *Chikitsa Chatuspada* in *Ayurveda*, are absolutely necessary for *Chikitsa* to be successful. *Chatuspada* deals with four important limbs or members of a treatment protocol and demands the qualitative involvement of each member towards effective healing.

Bhishak dravyaani upasthaataa rogi ,Chikitsitasya nirdishtam pratyekam , paada chatusthayam tat cha chaturgunam ⁵

There are four pillars of treatment include:

- *Bhishak*- Doctor
- *Dravya*- Medicines
- *Upasthata* - Attendants /nursing and support staff
- *Rogi*- Patient

Since it is applied in both *Shodhan* and *Shaman Chikitsa*, *Dravya* is regarded as being the most significant of the four. The next step after a doctor has found and diagnosed an illness is to administer the appropriate medications to treat it. To achieve a given outcome, a pharmacy's prescription or delivered medications must meet certain criteria. Four attributes of *Dravya* explained by *ayurveda* are: *Bahukalpam Bahugunam Sampanam Yogyamausdham*⁶. It means, the drug should be suitable for preparing many recipes, possess many good qualities, endowed with virtues (genuine, not defective) and suitable (to be used in different condition of dosas, in different diseases and different types of persons⁷.

1. **Bahu kalpam** - The drug or medicine could be used in many forms. Should be compatible with each other drugs. *Anekvividha kalpana* is the other attribute which means various pharmaceutical forms or multiple uses.

2. **Bahu gunam**- abundance in good qualities. Qualities including *rasa*-taste, *guna*- quality, *veerya* potency, *vipaka*- post digestion effects.

3. **Sampannam**- wholesome, the medicine should be grown in ideal conditions and in suitable climate. It should not be contaminated with insects or pesticides. It should be collected and preserved methodically.

4. **Yogyam**- it should be readily used in targeted diseases or preventing diseases.

The *dravya* or the herbs should be plucked and collected in an auspicious day and time as per ayurveda. It should constitute the capacity to destroy morbid *dosha*.

According to Acharya's: The medicine-opposite of *Dosha*, *Dushya*, and *Nidan* (etiological factor) or to all of the three will cure the disease ⁸. They also said that - when treating a disease, we can get success only when there is proper combination of *Kala*

(time), *Pramana* (dosage), *Bala* (strength), *Satmya* (wholesomeness), *Asatmya* (unwholesomeness), *Desha* (region), *Pathya* (useful), *Apathya* (harmful) and *Aayu*(age)⁹.

The classical references for *Bhaishajya kaala* explained by *Aacharya's* as:

*Charaka Samhita - Yonivyapat Chikitsa Adhyaya*¹⁰

*Sushruta Samhita - Swasthopkrama Adhyaya*¹¹

*Astanga Sangraha - Sutra Sthana*¹²

*Sharangadhara Samhita - Prathama khand*¹³

***Bhaishajya kaala* in *Sharangdhar Samhita*: -**

AUSHADHA SEVANA KAALA	INDICATIONS	AUSHADHA YOGA
<i>Suryodaya</i>	<i>Pitta / kapha vyadi, Virechana Vamana, Lekhana</i> ¹⁴	<i>Dhanyaka hima, ¹⁵, Dhatri rasayan etc.¹⁶</i>
<i>Divasabhojane</i> (afternoon meal)		
a) <i>Bhojana Purva</i> (<i>aushadhi</i> should be administered before meal)	<i>Apanavikruti</i> (disease related to intestine, urinary bladder, uterus related)	<i>a) Eranda paka, Majisthadi kwath, Mahadrakshasava, Devdarvadye arista, Shunthyadi paka, Narayan churna etc.</i>
b) <i>Sagrassa</i> (<i>aushadhi</i> is given with each and every morsel of food)	<i>Aruchi</i> (indigestion)	<i>b) Triphala ghrit, Aragvadhadi kalka, Ardrakavleha etc.</i>
c) <i>Bhojana Madhya</i> (between meal)	<i>Samana Vikruti</i> (disease related to stomach, digestive fire related disease)	<i>c) Avipattikara churna</i>
d) <i>Bhojana Pashchat</i> (After meal)	<i>Vyana Vikruti</i> (Paralysis, hiccups, vertigo) ¹⁷	<i>d) Dashmoolarista, Sarasvatarista etc.¹⁸</i>
<i>Sayambhojane</i> (evening meal)		
a) <i>Grasantare/Grase</i> (with each morsel of food)	<i>Udana vikruti</i> (larynx disease, cough, hiccups, asthma)	<i>Kantkari avleha</i>
b) <i>Bhojanapashchat</i> (after meal)	<i>Pranavayu vikruti</i> (cardiac diseases) ¹⁹	<i>Gandhak vati, Kumaryasava, Usheerasava, Triphala arista etc.²⁰</i>
<i>Muhurarmuhu</i> (<i>Aushadhi</i> is frequently administered)	Thirst, vomiting, nausea, hiccups, asthma, copd ,poisoning ²¹	<i>Arka pudina, Dashmoola arka²², Eladi gutika, Sanjeevanivati, Mutravirechan churna, Kaphakartan rasa.²³</i>
<i>Nishi</i> (<i>Aushadhi</i> is given after digestion of food)	<i>Urdhva Jatrugatayoga, samak medicines²⁴</i>	<i>Vijyapuspadyleha, Panchskar churna, Virechan churna etc.²⁵</i>

GENERAL RULE FOR ADMINISTRATION OF DRUG IN AYURVEDA: -

The pharmacokinetics and pharmacodynamics of an Ayurveda 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 been mentioned that, the predictable variations in bodily functions during day, season and age alters the severity of disease symptoms, results of diagnostic tests and effects of drugs and other therapies.

- *Aasava-Arista*: After food.²⁶
- *Taal - sindoor* : Mix with food and *Ghrita*.
- *Parpati* : Empty stomach.
- *Paak aushdhi* : Early morning.
- *Avleha* : Before/After food.²⁷
- *Tailam-Ghrita* : Before meal.²⁸

MECHANISM OF DRUG ACTION: -

- Some drugs act by virtue of their simple physical or chemical property.
- Bulk laxatives -physical mass Dimethicone, petroleum jelly-physical form, opacity.
- Para benzoic acid-absorption of UV rays Activated charcoal-adsorptive property.
- Mannitol, mag. sulphate osmotic activity I and other radioisotopes radioactivity.

- Antacids-neutralisation of gastric HCL.
- Pot. permanganate- oxidising property.
- Chelating agents (EDTA, dimercaprol)-chelation of heavy metals.
- Cholestyramine- sequestration of bile acids and cholesterol in the gut.

Majority of drugs produce their effects by interacting with a discrete target biomolecule, which usually is a protein. Such mechanism confers selectivity of action to the drug. Functional proteins that are targets of drug action can be grouped into four major categories, viz. enzymes, ion channels, transporters and receptors. However, a few drugs do act on other proteins (e.g., colchicine, vinca alkaloids, taxanes bind to the structural protein tubulin) or on nucleic acids (alkylating agents)²⁹.

SOME ORAL DRUGS LINKING WITH TIMING OF ADMINISTRATION: -

TIME OF DRUG ADMINISTRATION	GROUP OF MEDICINE	PHARMACOKINETIC
Early morning empty stomach	Hormones (Levothyroxine, Liothyronine, Tapazole , Propylthiouracil etc.)	When using the hormone along with calcium, iron, certain meals, and other medications, the absorption of these medications is slowed in the gut. ³⁰ .
Before half an hour of meal	Antacids (proton pump inhibitors and H ₂ - receptor antagonists)	To avoid heartburn and acid reflux, people take medications referred to as antacids thirty minutes prior to breakfast. Usually, it happens when there is an excessive amount of acid production. The way antacids operate is by neutralising (counteracting) the stomach acid, because bases (alkalis), the reverse of acids, are present in antacid compounds, this is what they do. Neutralisation describes the outcome of an acid and base reaction. This neutralisation lessens the corrosiveness of the stomach contents. This can prevent acid reflux ³² .
Just before meal	Anti- diabetic medicine (DPP-4 inhibitors/SGLT2 inhibitors/Meglitinide/ Sulfonylureas/Biguanides)	Around meal time, to prevent low blood sugar level, and to prevent high sugar level after eating. By slowing the digestion of carbohydrates and limiting glucose absorption in the small intestine, these drugs lower blood sugar levels. Additionally, they inhibit specific enzymes to delay the breakdown of particular carbohydrates. OR These drugs cause the pancreas to release more insulin, which lowers blood sugar. ³³ .
Just after afternoon meal	Antibiotics (Amoxicillin, Ciprofloxacin etc.)	Antibiotics treat bacterial infections either by killing bacteria or slowing and suspending its growth. They do this by attacking the wall or coating surrounding bacteria, interfering with Bacteria reproduction, blocking protein production in bacteria ³⁴ .

	NSAIDs (Ibuprofen, Diclofenac etc.)	These medicines can irritate the stomach, and taking them after food will prevent Ulcers, Stomach, Inflammation, and Heartburn. NSAIDs block a specific enzyme called cyclooxygenase (or COX) used by the body to make prostaglandins. By reducing production of prostaglandins, NSAIDs help relieve the discomfort of fever and reduce inflammation and the associated pain ³⁵ .
	Iron and zinc supplements And most of the drugs.	For better absorption these drugs given afternoon meal.
Just after evening meal	Ant platelet agents (aspirin, clopidogrel etc.) and most of the drugs.	Bedtime administration of aspirin and clopidogrel decreased morning surge of platelet aggregation while kept same antiplatelet efficacy during other times of the day compared to taking these drugs at day-time. ³⁶
Medicine Administered again and again	Short acting beta agonists (albuterol, epinephrine) /Anticholinergics (ipratropium)	The medicine helps open the airway and lets more air move in and out of your lungs and helps you breathe more easily ³⁷ .
In night	Antidepressants and anti-anxiety drugs (Doxepin/Estazolam/Eszopiclone/Ramelteon) Laxatives	Hypnotic medications work by increasing the activity of gamma-aminobutyric acid (GABA), a neurotransmitter in the brain. Increases in GABA activity in the brain produce drowsiness and facilitate or maintain sleep ³⁸ .

EXAMPLES OF MEDICINES FOR EMPTY STOMACH³⁹

- 1) Thyroid medications levothyroxine (Synthroid, Levoxyl, Tirosint).
- 2) Bisphosphonates -Through the chelation process, food can remove the active elements of medications. Calcium and iron are two minerals found in some foods. Some medications, including ciprofloxacin and bisphosphonates, will react and bind to the minerals. The drugs will become inactive as a result of this procedure, which is known as the chelation process. They are a class of drugs used to treat osteoporosis and aid in preventing bone deterioration. The stomach's bisphosphonates can become attached to certain meals, antacids, and vitamins. This makes absorption difficult. Therefore, it is taken on an empty stomach.
- 3) Sucralfate (Carafate) is an oral medication that's used to treat intestinal ulcers. It functions by creating a shield-like covering around the ulcer. Sucralfate needs to be consumed without food. In other words, at least two hours before or after a meal. The drug may not effectively cover the ulcer if taken with food. Do not take an antacid within thirty minutes of sucralfate if you are also taking one. Otherwise, it can make sucralfate less able to adhere to your ulcer.
- 4) Taken with meals, antibiotics are edible. But you have to take ampicillin on an empty stomach. The absorption is slowed down and less of it enters your body when it's taken with meals, according to research. This could reduce how well it works to treat your infection. Ampicillin should be taken 30 minutes before a meal, according to the instructions. If exposed to an acidic environment, azithromycin will deteriorate. The degradation of the medication is a result of an acidic environment. The body will therefore absorb less medication as a result of reduced absorption. The medication's effectiveness will subsequently decline. Therefore, taking such a drug on an empty stomach is advised.
- 5) Proton pump inhibitors (PPIs) are medications commonly used to treat GERD. They work by blocking the final step of acid secretion in your stomach. Food triggers your stomach to produce acid. So, you'll want your PPI to block acid secretion before acid gets triggered. That's why it's typically recommended to take PPIs before meals.

SOME EXAMPLES OF MEDICINES NEED TO BE TAKEN WITH OR AFTER FOOD⁴⁰

- 1) To lessen these adverse effects, it is preferable to take some medications that may cause nausea or vomiting after a meal. There are some medications that might cause nausea and vomiting, including allopurinol, bromocriptine, and the combination of levodopa and benserazide. The negative effects of some medications can be minimised by taking them with food.
- 2) Taking some medications with meals will lessen their tendency to aggravate the stomach. help lessen the negative consequences of stomach irritation, such as ulcers, inflammation, or indigestion. Examples include:

- Aspirin
- Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), such as Diclofenac and Ibuprofen
- Steroids, such as Prednisolone and Dexamethasone

3) To treat problems such as heartburn, reflux or indigestion, Medicines called antacids are taken to prevent heartburn and acid reflux and indigestion, which usually occur when acid is produced as food enters your stomach. Therefore, these medicines are most effective if taken immediately after, or during, a meal.

4) To ensure the medicine is not washed away, Preparations such as mouthwashes, liquid nystatin, and miconazole gel for oral thrush or mouth ulcers must be used after meals. This is because eating food washes the medicine away too quickly.

5) Some medicines require food in the stomach and gut for the body to absorb them properly, such as the HIV medicine ritonavir.

6) Medicines for diabetes that are taken by mouth should usually be taken around meal times. This is to reduce blood sugar levels after eating and to avoid a very low blood sugar (hypoglycaemia).

7) Enzyme supplements, which can be used to help people with chronic pancreatitis, should also be taken with food to help the body process the meal.

8) Medicines used to treat oral thrush such as nystatin syrup and miconazole gel should be used after food. Food will remove the medicines which subsequently reduce the effectiveness of the medicine.

9) Diabetic medicines

Diabetic medicines such as metformin and gliclazide should be ideally taken with not too long after or before food. This is to avoid hypoglycaemia and at the same time to ensure glucose blood level is not too high after food.

AT NIGHT-

In Allergic rhinitis, the symptoms are reported to be highest during the morning. Administration of long-acting antihistamine at night provides better results in controlling this morning discomfort rather than taking the medication in the morning as is frequently recommended⁴¹.

BP medicine should take at night -By taking blood pressure medications before going to bed, you're preventing high blood pressure during sleep, which is a significant risk factor for cardiovascular disease⁴².

DISCUSSION: -

There are various viewpoints on the *Bhaishajya Kaala*. *Sharangadhara* explained five *kaala* while *Acharya Charak*, *Sushruta*, and *Ashtanga Hridaya* explained ten *Bhaishajya kaala*. The fact that some drugs are administered on an empty stomach while others are administered after food indicates that *Bhaishajya kaala* is a significant factor in modern science as well. *Aushada* should therefore be administered for *Shamana & Shodhana chikitsa* at the proper dosage and timing in order for it to function at its best. According to research, the following justifications are given for *Bhaishajya Kaala's* significance: *Suryodaya*; When we consume medication on an empty stomach, *Agni* interacts with *Bheshaja* directly. According to chronopharmacotherapy, the mucosa of the stomach and intestines is more absorbent in the morning. *BhojanaPurva*; To avoid heartburn and acid reflux, which typically happen when acid is created in excess, some medications should be taken before food. Also, mechanical expulsion is also prevented by taking medicine before meal⁴³. *Bhojanapashchat*; Some medications should be taken after a meal since doing so will prevent stomach and/or colon ulcers⁴⁴. *Sagrasa*; It implies that *Aushadhi* is administered together with every portion of food to ensure that the medication is quickly absorbed from the buccal mucosa and enters the bloodstream early enough to take immediate effect⁴⁵. *Muhurarmuhu*; For *Roga* like *Kasa* and *Swasa*, medication needs to be given repeatedly. Thus, the medication facilitates the opening of the airway, allowing more air to enter and exit the lungs and facilitating easier breathing. This will increase the availability of biomedicine⁴⁶. *Nishi*; Some medications should be given at night because they boost the brain's neurotransmitter activity, which promotes sleep⁴⁷.

CONCLUSION: -

As above stated, that *Bhaishajya kaala* is also explained in our Classical textbooks by different *Acharyas*. They gave different number as well as different name for *Bhaishajya sevana kaala*. But all of them had same meaning. The *Bhaishajya kaala* explained by *Acharyas* based on *doshas, rogi, bala, roga bala* and on other factors. Numbers of *Aushadha Sevana Kala* are ten as per *Charaka*, *Sushruta*, *Ashtanga Hridaya*. Eleven are explained in *Ashtanga Sangraha* and *Sarangadhara* explained five *Bhaishajya Sevana Kala*. *Bhaishajya sevana kaal* can be correlated with the Chronotherapy in modern science, it means the administration of medication or treatment in coordination with the body's circadian rhythm to maximise effectiveness and minimise side effects.

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