



## **A Literature Review on Atisar W.S.R. to Diarrhea**

**Rohit Ware<sup>1</sup>, Rahul Gujarathi<sup>2</sup>, Sheetal Pudale<sup>3</sup>**

<sup>1</sup> PG Scholar, Department of Kaumarbhritya, Bharati Vidyapeeth Deemed University College of Ayurveda, Pune, Maharashtra, India.

<sup>2</sup> Guide, HOD and Professor, Department of Kaumarbhritya, Bharati Vidyapeeth Deemed University College of Ayurveda, Pune, Maharashtra, India.

<sup>3</sup> Co-Guide and Assistant Professor, Department of Kaumarbhritya, Bharati Vidyapeeth Deemed University College of Ayurveda, Pune, Maharashtra, India.

**Correspondence Email :** rohitware108@gmail.com

### **ABSTRACT**

*Diarrhea is a disease of children mainly involve symptoms of disturbed bowel movement. At current era, its common problem among children's, especially below 12 yrs. This health problem which is caused by irregular and unhealthy dietary habits and lifestyle, which leads to sarira and manavaigunya (physical as well as psychological involvement). Although diarrhea is rarely dangerous, it can be recurrent and cause agony in life. The incidence of diarrhea is increasing day by day due to influence of western food habits, inappropriate diet regimen and mental stress. Diarrhea is the diseases of intestinal disturbances; involve water and electrolyte imbalance, malnutrition along with common symptoms like increase of defecation, disturbed thirst, weakness, gas formation and abdomen cramps. Diarrhea not only affect health of children but is also consider responsible for infant mortality especially in tropical and sub-tropical countries. As per ayurveda atisar (Diarrhea) can be classified into seven categories vataj, pittaj, kaphaj, bhayaj, tridoshaj, shokaj and raktatisara. nidanpanchaka with emphasis on samprapti of diarrhea as describes in ayurvedic literature discussed here. By understanding nidanpanchaka along with in depth understanding of samprapti helps in planning specific preventive measures and management of diarrhea.*

**Keywords:** diarrhea, balatisara, atisara, nidanpanchaka, samprapti, ayurveda.

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### **INTRODUCTION**

Maintenance and achievement of health and care of diseased person is the primary aim of ayurveda and this is maintained throughout life. [1]

In the developing countries like India, due to development cause unhygienic environment, water pollution, air pollution these unhygienic conditions cause any health problem like *Bal-atisar* (Diarrhea).

Alteration in consistency or frequency of stool result in a net loss of fluids and electrolytes from the body is termed as *Atisara* (diarrhea) [2]

*Atisar* (Diarrhea) is most common disease in clinical practice, it is gastrointestinal disease, every one suffers once in life time. Diarrhea is described in Ayurvedic text as '*Atisara*' term *Atisar* is derived from *Ati* (Excessive) and *Sara* (passing of liquid matter through anus). The excessive passing of liquid matter (*Saran*) with *purishyuktaapadhatu* through anus (*adhomarg*) is termed as *atisar* (Diarrhea). In this condition where watery stool passed in excess, several times a day through rectum. Most important factor in the pathogenesis of *Atisara* (diarrhea) is *Mandagni* (Low digestion power). [3]

Diarrhea is frequent passage of watery stool, an increase in frequency of stool through increased bowel movement relative to usual habit of each individual or an increase in frequency and fluidity of stool, so that stool takes shape of container. Diarrheal diseases account for large proportion. It is major factor for malnutrition in children. [4]

Mostly diarrhea is nonbacterial origin so the recommendation of antibiotics remains limited or invasive type only, continuous use of antibiotics in viral diarrhea worsen the condition of children. Frequent use of antibiotic is hazardous for child intestinal flora but causes drug resistance.

*Ayurvedic* medicines are very effective for diarrhea, in clinical practice *ayurveda* play the important role by balancing body element (*Dosha, Dhātu, Mala*) in natural way to cure disease. Herbs have the effect based on taste (*Rasa*), potency (*vipak*) and post digestive effect (*vipak*). As well as there are

some specific effects of plant itself (*prabhava*). Natural herbs improve the body metabolism and digestive disorder, so we can save child from adverse effect of antibiotics.[5]

#### **Mythological origin of Diarrhea:**

Initially, animals were not sacrifices in yajna. Later king Prasadhra conducted yajna and started sacrificing animals even (bulls and cows). After observing this, living creatures were being wildered. The meat of the sacrificed bulls and cows proved to be too heavy, too hot and too harmful. that meat started suffering from the loss of the power of digestion and loss of mental equilibrium thus atisara (Diarrhea) originated from the yajnavyadhi.[6]

#### **Nidanpanchak**

The concept of nidanpanchak plays an important role in knowing the vyadhi (Disease) so among the panchnida, nidan (cause) is first and is classified in two categories.

1) samanyanidan

2) vishesh Nidan

#### **Vishesh Nidan**

##### **1) Vataj Atisar-[7]**

- Exposure to strong excessive vata (wind)
- Exposure to hot sun (Atap)
- Exercise (Vyayam)
- Indulgence in unctuous food or less quantity of food or irregular meals (pramitasana)

##### **2) Pittaj Atisar -[8]**

- Excessive intake of sour (Amla), saline (Lavan), spicy (katu), alkaline (ksara), hot and sharp (Tikshna) ingredient
- Affliction of the body by excessive exposure to the heat of strong fire (Pratata)
- Exposure of hot rays of sun (Suryasantapa)
- Exposure of hot air (Ushnamarut)
- Excessively wrathful and jealous disposition (krodhsantap)

##### **3) Kaphaj Atisar-[9]**

- Intake of heavy (guru), sweet (Madhur), cold (sheet) ingredient.
- Sleeping during day time (Diwaswap)
- Inactivity of mind and indolence

##### **4) Sannipataj Atisar -[10]**

- Intake of excessively cold, unctuous, hot, heavy, coarse and hard ingredients
- Intake of irregular meals, ingredients of food having mutually contradictory properties and unhealthy food
- Avoiding intake of food
- Excessive exposure to Air (vayu), heat (Agni), sunlight (surya), water (Jala), Improper sleep, daytime sleep.

##### **5) Raktaj Atisar -[11],[12]**

- Intake of pittakarahar during pittajatar.

##### **6) Exogenous (mental) diarrhea-[13]**

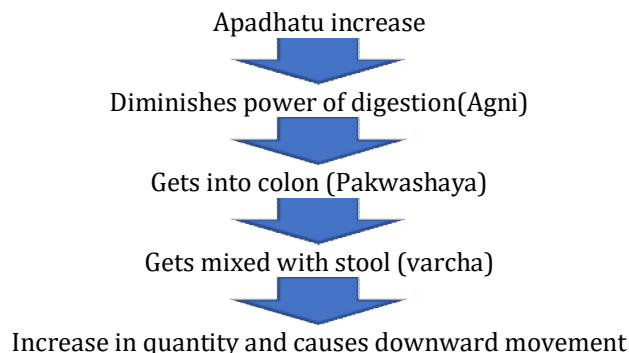
- Mental origin diarrhea having two types-  
1) Fear 2) grief

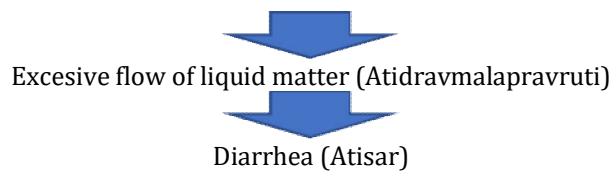
##### **7) Amaj Atisar -[14]**

- Due to improper digestion (Amaajirn)

#### **Samprapti -[15]**

Nidan Sevan



**Samprapti Ghatak-**

Dosha-vataPradhan tridosha

Dushya -Rasa, Rakta,Mamsa, Meda,Mutra,Purisha

Adhisthan-Mahasrotas

Srotas-annavaha,purishvaha,udakvaha

Srotodushti-atipravriti,vimargagamn

Involvement of vatapradhandushti can be figured out in samanyasamprapti of diarrhea (Atisar), leading to agnimandya and ajeern (indigestion) which turns causes dushti of koshta (stomach) and pakwashaya (colon). As a result apadhatu attain vimargagaman (downward direction) from different part of the body to koshta (stomach) leading to increase in liquidity of stool. In colon manifesting as diarrhea (atisar).

By analysis of above factor, samprapti of diarrhea (Atisar) can be summarized as the etiological factors cause diminishes the power of digestion resulting in disturbance and dushti of apadhatu mixed with stool. Its driven down and by snama and apanavayu, which inturn leads to expulsion of most water mixed stool through anus (Guda).

According to acharya vagbhata'svayu getting aggravated makes the aap dhatu to more downward ,destroying the anala ,invades the koshta (stomach),makes the faeces watery and produces diarrhea (Atisara).[16]

According to acharya sushrutautarsthana, increased body fluid diminishing the internal fire mixes with faeces propelled by vayu (wind)passes out excessively that is why this severe disease is known as Diarrhea (atisara).[17]

**Samprapti according to dosha -****1)Vataj atisar samprapti-[18]**

Due to hetusevan(causes), the vayu gets aggravated and the power of digestion (agni) geta afflicted after the loss of the power of digestion, theaggravatedVayu forcefully bring down the urine and sweat to the colon (purisasaya)and with the help of these (urine and sweat) liquifies the stool causing diarrhea thereby.

**2)Pittaj atisar samprapti-[19]**

Due to hetgusevan (causes) pitta gets aggravated, this aggravated pitta on account of its liquidity suppressed the power of digestion and having arrived at the colon, disintegrates the stool because of its heat, liquidity and mobility thereby causing paikttika type of diarrhea(atisar).

**3)Kaphaj atisar samprapti-[20]**

Due to hetusevan (causes) kapha aggravated by nature,kapha is heavy , sweet, cold and uncutuous. It moves downward (because of its heaviness etc.) and afflicts the agni (power of digestion) on account of its natural cooling property (which is contradictory to heating effect of agni) thereafter having arrived at colon it liquefies the stool to cause diarrhea.

**4) Sannipatika atisara samprapti -[21]**

Due to nidasnsevan(causes), the power of digestion (Agni)gets vitiated as a result of which all the three doses get aggravated. These aggravated doshas,in their turn further afflict the agni and having entered into pakwashaya (colon),causes atisar (diarrhea) in which signs and symptoms of all these types of atisar are manifested.

**5) Rakatajatisarsamprapti-[22]**

The patient of pittajatisar who avoding the treatment of atisar, and indulge in the intake of pitta vitiated food and drinks, his pitta gets aggravated severally as a result rakta gets vitiated quickly and manifests raktatisara.

**6)Amajatisar-[23]**

In person whose food not properly digested.

**Purva roopa (Premonitory Symptoms)-[24]**

Pricking Pain in Hruday,nabhi,kukshi,udaara

Obstruction of vata (wind)

Constipation (malbaddhata)

Abdominen distension (adhman)

**Roopa (symptoms)-[25]**

Discoloration of body, Uneasiness of mouth, fatigue, Insomnia, Absence of function of vayu (flatus).

**Vishishtalakshan-[26]****1.Vataj atisar-**

Passing of blackish, frothy, ama and small amount of stool, abdominal pain during passing of stool.

**2. Pattajaatisar-**

Passing of yellowish, greenish, blackish foul smell stool with burning sensation frequently thirst, sweating, fainting.

**3.Kaphaja atisar-**

Passing of unctuous, white, slimy thready and heavy foul smell stool with mucus horripilation nausea and tenesmus.

**4.Sannipataj atisar-**

Passing of stool (yellow, green, bluish and reddish in color, fatty in texture) passing of stool with or without pain. Symptoms of all three types of atisara present in this type and it is difficult to cure.

**5.Shokaj atisar-**

According to charak and vaghbhat its signs and symptoms are similar to vatajatisar.

**6.Amaj atisar-**

Passing of stool frequency of various color, abdominal pain are the main features of amajatisar

**Ayurvedic Prospective of Dehydration[27]**

Features of thirsty person can be considered at the symptomatology correlated to the signs of dehydration in ayurveda are: Dryness of palate, tongue and throat, unable to perceive by eyes and ears, lethargy and orientation, no appetite, general weakness, protruding tongue.

**Examination of stool (mala Pariksha)-[28]**

1) Strotopariksha(examination of strotas)

2) Malapariksha(examination of stool)

**1) Strotopariksha (examination of strotas)**

The dominant strotas involved in diarrhea is pureeshvaha strotas. Its dushti symptoms is krichrenaapalpam, sasabda (with noise), sashool (with pain), atidravam (liquid), atigranthitham, atibahu (excessive).

**2) Malapariksha (examination of stool)**

It plays a vital role in detecting abnormal constituent such as ama, rakta, krimi, and payu etc. in stool, assist in differentiations ama mala and pakwamala.

According to ashtangasangrah,

- Stool is in ama awastha, it sinks in water whereas niram if floats in water except in condition of excess liquidity, compactness, coldness and presence of mucus.
- The ama stool has foul smell with painful flatulence, distressing constipation and abnormal salivation.
- Niram mala is free from these symptoms.

**DISCUSSION**

Factors which are responsible for pathogenesis of Diarrhea are mandagni, Jaliyaanshaprabhuta and vatavikruti.

Thus we need a combination of ingredients which acts on all the pathological factor of atisara (diarrhea) in children. Treatment of amatisara is amapachan first, while in pakwatisara stambhan is first line of treatment. In case of children applicable of classical amapachan treatment i.e. elanghan; use of drugs havngkatu, ushna, tikshna properties is not feasible because children are delicate in nature.

Mostly diarrhea is nonbacterial origin so the recommendation of antibiotics, remains limited continuous use of antibiotic, in diarrhea worsen the condition of children. Frequent use of antibiotics in diarrhea worsen the condition of children, frequent use of antibiotics is hazardous for child intestine flora.

Ayurvedic medicines are very effective for diarrhea in clinical practice. Ayurveda play the important role by balancing body by element like Dosh, Dhatu, Mala in natural way to cure diarrhea.

In Ayurvedic classic there are some formulation and natural herbs specially mention for balatisara (childhood diarrhea) which improve the body metabolism and digestive disorder. So we can save child from adverse effect of antibiotics.

**CONCLUSION**

Diarrhea is disease of GIT; and it has aaharaj and viharajnidan. Nidanpanchak is widely described in Ayurveda literature. Exhaustive Knowledge of nidanpanchak is essential for diagnosis of disease, so avoiding the causative factor is primary step in the management of diarrhea. The samprapti involve variation of vatadosha and apa dhatu along with agnimandya and mala dravat, so the treatment approaches involve agni boosting, the Ayurvedic formulation use for its treatment usually have deepen

,pachan and grahi properties .These formulation improve appetite, relieve defecation frequency, relief abdominal pain, tenderness and reduced production of ama.

Charkacharya has mentioned individual separate doshajsamprapti for different types of diarrhea. Mandagni is the most important factor in causation of diarrhea. Thus drugs used for treatment should be act directly or indirectly on agni. If atisara is not treated properly, agni gets further hampered and it leads grahaniroga. The disease so the management should aim at nidanpanchak in atisara by avoiding agnivaigunyakarhetu and apanvaigunyakarhetus.

### **Drugs Used in diarrhea (Atisara)-**

#### **1.Pippali(*Piper longum*):[29]**

Rasa-katu

Veerya-anushna and sheeta

Vipak-madhur

Guna-Laghu,snigdha,Tikshna.

The essential oil of *Piper longum* shows antibacterial activity against the *B. cereas*, *B. subtilis*, *Sh.dysenterical*,*sh.boydi*, *S.typhi* *vibrio cholerae*,*niger*,*S. paratyphi*. The water extract shows a marked antibacterial activity against *E. coli*. Piperine is also known to reduce the intestinal mobility as the intestine may retain the medicament for its effective absorption.

#### **2.Bela (*Aegle marmelous*):[30]**

Rasa-Apakwa phala(uripe)-kashay,tikta,katu

pakwaphala(ripe)-madhur,kashay

Veerya-sheeta

Vipak-madhur

Guna-snigdha,Tikshna,grahi,deepan.

The pulp of *Aegle marmelous* is known to possess anti-diarrheal property. Alcohol of fruit in 0.5gm/kg intra peritoneally dose exhibits anti-diarrheal effect against castor oil induced diarrhea.

#### **3.Shunti (*Zingiber officinale*):[31]**

Rasa-katu

Veerya-ushana

Vipak-madhur

Guna-deepan,bhedan, vatkapshamak.

Gingerol and 6-shegol suppressed gastric construction but increase gastro intestinal motility and spontaneous peristalsis activity.

Ginger is known to have antimicrobial activity. Its effective against both gram positive and gram-negative bacteria. The antimicrobial is considered to be due to a pinene bisabolones and camphor present in the essential oil of ginger.

#### **4.Jayphala (*Mysistica fragrance*):[32]**

Rasa-Tikta

Veerya-ushana

Vipaka-Katu

Guna-deepan,Rochan, Laghu.

*M.fragrance* is known for its anti-diarrheal activity from long period. Its antibacterial activity on *E.coli*, *V.cholerae* may be consider as contributory factor for its anti-diarrheal effect The effectiveness of the treatment may be due to the inhibition of prostaglandin synthesis in the mucosa and sub mucosa of the colon.

#### **5.Vacha (*Acorus calamus*):[33]**

Rasa- Katu,Tikta

Veerya-ushana

Vipaka-Katu

Guna-deepan, Laghu.

Oil exhibits marked antibacterial activity against *P.solanaceum*, *S. typhi* and *S.albus*.

#### **6.Musta (*Cyperus rotundus*):[34]**

Rasa- Katu,Tikta

Veerya-Sheeta

Vipaka-Katu

Guna-deepan, bhedan,Hridya.

Chloroform and menthol extract of dried plant when tested on agar plate are active on *B.subtilis*, *E.coli*,*P.aeruginosa* and *S.aureus*. Decoction of dried stem exhibits antibacterial activity against *S.paratyphi*.

**7.Katuka (*Picrorhiza kurroa*):[35]**

Rasa-Tikta

Veerya-Sheeta

Vipaka-Katu

Guna-deepan, bhedan, Hridya.

ARVENIN 3, the aqueous extract of *Picrorhiza kurroa* roots shows anti-bacterial activity against *E. coli*.

**8.Kakajira (*Nigella sativa*):[36]**

Rasa-Tikta

Veerya-ushna

Vipaka-Katu

Guna-deepan, ruchya, shoolaghna.

Antimotility and antidiarrheal effect of *N.sativa* have been studied against serotonin induced diarrhea. Serotonin that is 5-HT (5-hydroxytrypanin) is itself a diarrhoeagenic hormone and causes diarrhea in humans.

*Nigella sativa* is known to inhibit cyclooxygenase and S-lipoxygenase pathways of arachidonate metabolism and thus inhibit the prostaglandin action. It also inhibits 5-hydroxytrypanin, which cause contraction of gastro intestinal smooth muscles increasing tone and facilitating peristalsis associated with severe diarrhea by the direct action of serotonin on 5-HT smooth muscle receptor plus a stimulating action on ganglion cells. Activation of 5HT2 in this system causes increased acetylcholine release and thereby mediates a motility enhancing or prokinetic effect.

The aqueous extract is known to have spasmolytic activity. It antagonizes the cholinergic, histaminergic oxytocic receptors. It causes the inhibition of diarrhea induced by castor oil. The alcohol and ether extract are known to have antibacterial activity against *E. coli*. This multifactorial activity of *N.sativa* produces antidiarrheal effect.

**9.Kamal (*Nelumbo nucifera*):[37]**

Rasa-Madhur

Veerya-Sheeta

Vipaka-Madhur

Guna-Dahagna, sheeta, Ruksha.

(Pro and anti-kinetic effect)

The methanolic extract of rhizomes of *Nelumbo nucifera* shows significant inhibitory action against castor oil induced diarrhea and PGE induced enter polling in rats. It also shows significant reduction of gastro intestinal motility in rats.

**10.Jatamansi (*Nardostachis jatamansi*):[38]**

Rasa-Tikta, Kashay, Madhur

Veerya-Sheeta

Vipaka-Katu

Guna-Tikshna,sneegdha

The ethanolic extract is devoid of anti-protozoal activity against *Entamoeba histolytica*.

**11.Shatawari (*Asparagus racemosus*):[39]**

Rasa-Tikta, Madhur

Veerya-Sheeta

Vipaka-Madhur

Guna-Vrushya ,Balya, Rasayan.

Methanol extract of *Asparagus racemosus* at different concentration shows *in vitro* antibacterial activity against *E. coli*, *Shigella dysenteriae*.

**12.Karela (*Momordica charantia*):[40]**

Rasa-Tikta, Katu

Veerya-Ushana

Vipaka-katu

Guna-Laghu, Ruksha.

The seed oil of *Momordica charantia* pronounced antibacterial activity against gram negative bacteria stains like *E.coli*.

Chloroform, ether, menthol and water extract of *M. charantia* inhibits the growth of *M.smegates*, *S. typhi*, *S.lutea*, *S.dysenterica*.

**13.Kuda (*Holarrhena antidysenterica*):[41]**

Rasa- Katu

Veerya-sheeta

Vipaka-katu

Guna- Ruksha.

Anti-amoebic activity of *H. antidyenterica* is well known. Various fraction of *H. antidyenterica* shows promising activity against experimental amoebiasis in rats and hamsters.

**14. Anantmula (*Hemidesmus indicus*):**[42]

Rasa- Madhur, Tikta

Veerya-sheeta

Vipaka-Madhura

Guna- Guru, Sneegdha.

The essential oil obtained from the plant exhibits marked antibacterial activity against *E. coli*. The petroleum ether, chloroform and alcoholic extract of *H. indicus*. Roots shows antibacterial activity against *V. cholera*, *E. coli*.

**15. Kalmegha (*Andrographis paniculata*):**[43]

Rasa- Tikta

Veerya-sheeta

Vipaka-Tikta

Guna- Laghu, Ruksha.

The alcohol extract of *A. paniculata* exhibits significant anti-diarrheal activity against *E. coli* enterotoxins. The activity is andrographolide and neandrographolide show similar action as loperamide against *E. coli* induced diarrhea. However, its antibacterial activities are not ruled out.

**16. Daruhaldi (*Barberis aristata*)-** [44]

Rasa- Tikta

Veerya-Ushana

Vipaka-Katu

In addition to its anti-microbial action berberine has also shown to block the adherence and *S. pyogenes* and *E. coli* to erythrocytes and epithelial cells. In a clinical trial berberine showed a significant reduction in liquid diarrhea stool as compared with controls, Berberine has been shown to choleratoxins. Berberine effectiveness in reducing water and electrolyte secretions induced by streptococcus and cholera toxins appears to be enhanced in a dose dependent manner. In addition to its direct anti-microbial effects, several other mechanisms may be playing a part for its ability to inhibit infectious diarrhea. Metabolic inhibition of certain organism, inhibition of the toxins inhibition of formation of toxins, direct antagonism of the toxins, inhibition of intestinal ion secretion and inhibition of smooth muscles contraction may all play a role in exhibiting its important anti-diarrheal activity.

Berberine is also known to delay small intestine transit time, this property may also have contributed to its anti-diarrheal activity. Berberine is known to block muscarinic receptors and to exhibit noncompetitive inhibition of the contractile response induced by acetylcholine thus acting to inhibit spontaneous peristalsis in the intestine. In animal studies the transit of small intestine was significantly delayed to 15-100 minutes after higher dose of berberine in humans 1.2 gms of berberine significantly delayed small intestine transit time after an oral dose.

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