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**A COMPARATIVE STUDY OF VATSAKADI SYRUP AND  
BALACHATURBHADRA SYRUP IN MANAGEMENT BALATISARA WITH  
REFERENCE TO DIARRHEA**

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**A COMPARATIVE STUDY OF VATSAKADI SYRUP AND  
BALACHATURBHADRA SYRUP IN MANAGEMENT BALATISARA  
WITH REFERENCE TO DIARRHEA****ABSTRACT**

Diarrhea is one of the chief causes of infant mortality in most tropical and sub-tropical countries. Anti-diarrheal drugs available in market have more or less tarnishing effect on normal intestinal flora whose loss itself induces the diarrhea. *Vatsakadi Kashaya* & *Balachaturbhadra Choorna* are known drugs which are useful in *Atisara*. 50 patients of *Atisara* were selected for the study and were randomly classified in to two groups of 25 cases each. The group A was given *Vatsakadi* syrup & group B was given *Balachaturbhadra* syrup for 7 days in dosage ranging from 5 to 15 ml. according to their age group. Both groups have shown highly significant results in relieving the symptoms of *Atisara*. *Vatsakadi* group 76% patients are completely cured, whereas in *Balachaturbhadra* group only 40% patients are completely cured. Hence *Vasakadi* syrup seems to be more effective in *Atisara*.

**KEY-WORDS-** *Atisara*, *Balachaturbhadra Choorna*, *Vatsakadi Choorna*

**INTRODUCTION**

*Atisara* (Diarrhea), a disease in infancy still constitutes one of the chief problems in pediatric practice in most of developing countries.<sup>[1]</sup> The situation with regard to infantile gastro enteritis in this region is at present depressing because of the excessive incidence of *Atisara* especially among infants, their lack of resistance to fight the causative pathogens, the greater liability of infants and the young children to develop water and electrolyte disturbances, the widespread prevalence of malnutrition and under-nutrition and their high mortality and morbidity. <sup>[2]</sup> *Atisara* is still the commonest cause of infant mortality in most tropical and sub-tropical countries. <sup>[3]</sup> Deprivation of potable water is main cause of *Atisara*. Anti-diarrheal drugs available in market have more or less tarnishing effect on normal intestinal flora whose loss itself induces the diarrhea. Current therapy, therefore for diarrhea is to avoid these drugs as far as possible and to support the general condition of patient.

Though the research in modern medicine has advanced much but still it is not satisfactory enough, as some the present drugs at our disposal are defamed for having side effects, some are expensive while some are resisted by organisms. *Charaka* has mentioned about medicines for children should be *Madhura* (sweet), *Mridu* (soft), *Laghu* (easy to digest), *Surabhi sampurna* (pleasant), *Sheetal* (cold) & *Sanshamaka* (soothing).<sup>[4]</sup>

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Hence, with a view to find out some suitable drug which can alternatively be used in diarrhea, the present study is executed. *Vatsakadi Kashaya* <sup>[5]</sup> & *Balachaturbhadra Choorna* <sup>[6]</sup> are known drugs which are useful in *Atisara*. But for pediatric use, palatable and liquid preparations are preferred which can be easily administered to the infant and children. Keeping these points in view syrup preparations of *Vatsakadi Kashaya* & *Balachaturbhadra choorna* were selected to evaluate the effect in the management of *Atisara* especially in infants and children.

**MATERIALS & METHOD**

The pediatric patients attending the OPD of the Kaumarbhritya department, IPGT & R hospital with the complaints of *Atisara* were selected for the present study. All the patients were thoroughly examined and interrogated for the complaints pertaining to various systems. Signs and symptoms of dehydration and mal-absorption were also recorded before starting the treatment. In addition, the routine examination of stool was carried out to confirm the diagnosis & exclude the other pathologies.

50 patients of *Atisara* were selected for the study and were randomly classified in to two groups of 25 cases each. The group A was given *Vatsakadi* syrup & group B was given *Balachaturbhadra* syrup.

**Method of Drug Preparation**

Dried herbs were collected from local market of Jamnagar, Gujarat & authenticated in pharmacognosy laboratory and drug testing laboratory at Gujarat Ayurved University. The contents of *Vatsakadi* syrup <sup>[5]</sup> & *Balachaturbhadra* syrup <sup>[6]</sup> are summarized in **Table 1 & 2**.

Table 1 Contents of Vatsakadi Syrup

Name of Herb	Latin name	Part used	Proportion
Vatsaka	<i>Wrightia antidysenterica</i> (L.) R.Br.	Skin	1 part
Ativisha	<i>Aconitum heterophyllum</i> Wall.	Tuber	1 part
Bilwa	<i>Aegle marmelos</i> Corr.	Root	1 part
Musta	<i>Cyperus rotundus</i> Linn.	Tuber	1 part
Udichya	<i>Pavonia odorata</i> Wild.	Whole plant	1 part

Table 2 Contents of Balachaturbhadra Syrup

Name of Herb	Latin name	Part used	Proportion
Musta	<i>Cyperus rotundus</i> Linn.	Tuber	1 part
Pippali	<i>Piper longum</i> Linn.	Dried fruit	1 part
Ativisha	<i>Aconitum heterophyllum</i> Wall.	Tuber	1 part
Karkatshringi	<i>Rhus succedanea</i> Lin n.	Cocoon	1 part

Syrups were prepared in the pharmacy of GAU under the guidance & supervision of experts. There are two steps in preparation of both syrups.

### Step I

Decoctions were prepared as per classical method mentioned by *Sharangadhara*.<sup>[7]</sup> Decoctions were filtered with the help of thick white cloth.

### Step II

Decoctions were kept on fire to make little thicker. Sugar was added 70% of the total ingredients for the palatable taste and as preservative. Colour and flavor were also added for better look and odor, preservative Sodium Benzoate 0.5% was added for safe – keeping. The physico-chemical analysis was carried out in the modern pharmaceutical department. The results are summarized in Table 3

Table 3 Physico-chemical properties of syrups (with preservative 0.5% Sodium Benzoate)

Parameter	Vasakadi Syrup	Balachaturbhadra Syrup
Physical appearance	Reddish brown colour	Yellowish brown colour
pH	5.13	5.45
Specific gravity at 25°C	1.3012	1.3117
Tests for alkaloid	Positive	negative
Sodium	0.15% w/w	0.28% w/w
Potassium	0.088% w/w	0.096% w/w

### Method of Drug Administration

Both the *Vasakadi* syrup (Group A) and *Balachaturbhadra* syrup (Group B) were administered for 7 days in dosage ranging from 5 to 15 ml. according to the age group. (i.e. 1-5 years – 5ml, 5-10 years – 10ml & 10-15 years -15 ml) thrice a day along with water.

### Dietetic Regimen

During the course of treatment the patients were advised to take the light diet i.e. fresh butter milk/ curd with steam rice, soups, *khichadi*, etc.

### General Methodology

The effect of the treatment was assessed on the basis of the following criteria:

Before and after Signs and symptoms of dehydration and mal-absorption were recorded. Daily frequency, consistency, colour and presence of any amount of mucus and blood in it were noted, microscopic changes in the stools were also recorded. *doshika* signs and symptoms of the stool and defecation described in Ayurveda texts were analyzed and their predominance was noted.

To analyze the results statistically 2 marks were given to each of the symptom of disease. The sign and symptoms of dehydration, mal-absorption and *stoto-dushti* symptoms before starting the treatment, one mark was allotted to each symptom reduced remarkably after treatment and 0 mark to the completely relieved symptoms. The symptoms showing no remarkable improvement after the treatment were given the same 2 marks. In case of stools 2 marks were given before treatment, if it has shown worms or parasite and 0 mark was given if the report did not show any abnormality after the treatment.

### Criteria of Assessment

The total effect of the therapy was assessed in terms of cured, markedly improved and unchanged the criteria adopted for this was as follows:

**Cured:** The patients showing the three features of good prognosis i.e. *Deeptagni*, *Laghu koshttha* and *vayu mootra pravritti* as well as significant change in the pathological investigation of stools were considered as cured.

**Symptomatic Relief:** The patients showing relief in the signs and symptoms but no change in the pathology of stools were labeled as symptomatically relieved.

**No cured:** The patients showing no relief in the signs and symptoms as well as in the pathological investigations were considered as cured.



Table 4 Age wise distribution of the 50 patients of *Atisara*

Age in years	Group A	Group B	Total
0 to 4	11 (44 %)	11 (44 %)	22 (44 %)
4 to 8	5 (20 %)	8 (32 %)	12 (26 %)
8 to 12	6 (24 %)	3 (12 %)	9 (18 %)
12 to 16	3 (12 %)	3 (12 %)	6 (12 %)

Table 5 Incidence and percentage of Relief in each symptom score of 50 patients of *Atisara*

Signs	Group A		Relief (in percentage)	Group B		Relief (in percentage)
	BT	AT		BT	AT	
Loose motions	40	4	90	36	12	67
Stool with mucus	38	2	95	20	12	40
Stool with blood	8	0	100	16	10	38
Impaired appetite	40	6	85	50	14	72
Nausea	2	0	100	12	0	100
Vomiting	6	0	100	2	0	100
Pain in abdomen	36	0	100	38	6	84
Tenderness in abdomen	16	0	100	18	6	67
Distension of abdomen	32	10	69	12	4	67
Gastro colic reflex	22	14	36	8	0	100
Fevers	2	0	100	8	0	100
Cough and cold	8	0	100	8	0	100
Stomatitis	8	0	100	10	0	60
Pruritus ani	4	0	100	4	0	100

Table 6 Incidence and relief in sign and symptom score of dehydration

Signs	Group A		Relief (in percentage)	Group B		Relief (in percentage)
	BT	AT		BT	AT	
Dried tongue	28	0	100	44	10	77
Shrunken eyes	20	0	100	40	8	80
Frequency of stool	24	0	100	44	6	86

Table 7 Incidence and relief in sign and symptom score of mal-absorption

Signs	Group A		Relief (in percentage)	Group B		Relief (in percentage)
	BT	AT		BT	AT	
Edema	36	0	100	42	16	62
Paraesthesia	26	0	100	30	7	77
Muscle cramps	18	4	78	24	8	67
Fatigue	40	10	75	48	15	69

Table 8 Effect of treatment on stool investigations

Group	BT	AT	Relief (in percentage)
A	40	12	70
B	44	30	31

Table 9 Result of Treatment

Result	Group A (No. of patients)	Group B (No. of patients)
Cured	19 (76 %)	10 (40 %)
Symptomatic relief	4 (16 %)	7 (28 %)
No relief	2 (8 %)	8 (32 %)

## DISCUSSION

*Mandagni* being the picot and rather the most important factor in causation of *Atisara*, all combinations tested and advocated for treatment of *Atisara* have directly or indirectly act on agni. *Vatsakadi Kashaya* and *Balachaturbhadra Choorna* act on *Atisara* due to their *Deepana* (Appetizer), *Pachana* (Digestive) and *Grahi* (Absorber) properties. The idea to have trial of the drugs in syrup form is for pediatric practice only. The incidence of *Atisara* was high in children below 4 years in both the groups. It may be cause of instability of *Agni*, immaturity of tissues etc. In sex male dominance was seen in both the groups, but the sex does not play any role in the causation of *Atisara*. While considering the socio economical status, the incidence of *Atisara* was found high in lower income group in both groups. It is well known that even in developing countries poor

hygiene, limited food supply which is often unclean have been considered as the causes of *Atisara*. Hence, these may be the reasons for high incidence in low income group.

There was no past history of diarrhea in maximum number of the patients in both the groups. Similarly there was no evidence of family history of *Atisara* in a greater number of patients in both the groups.

In both the groups the incidence of diarrhea was observed in vegetarians, because the majority of people residing over Gujarat are vegetarians.

Regarding the hygienic condition and the source of water supply. It was noted that the incidence of *Atisara* was high in unhygienic environmental condition and where unprotected water supply was prevailed in both the groups, as it can be speculated that the individuals are usually exposed to the parasites in said conditions, which causes diarrhea.

Regarding the *Doshika* analysis of stools, it was observed in maximum number of patients of the group B that the stools have shown *Pitta* vitiation. Whereas in group A the *Pitta* and *Kapha* vitiation was seen in an equal number of patients. Here the improper functioning of *Agni* may be the cause of *Pitta* vitiation in the stool.

Among the complaints, loose motions, stools with blood, impaired appetite, pain in abdomen and distension of abdomen are common symptoms in almost all the cases of *Vatsakadi* group and *Balachaturbhadra* group which were relieved significantly after the administration of drugs. The *Deepan* effect of the drugs may be the cause of improvement in impaired appetite. *Grahi* effect of both *Vatsakadi* and *Balachaturbhadra* syrups might have helped in relieving the loose motions as well as stools with mucus. Pain in abdomen, tenderness of abdomen and distension of abdomen might have been relieved due to *Pachana* and *Vatanuloman* actions of the compounds.

Regarding the *Strotasa*, in case of *Atisara*, there is mainly vitiation of only 3 *Strotasa* namely *Annavaha*, *Udakvaha* and *Malavaha*. All the cases of both the groups have shown one or the other symptom of vitiation of the *Strotasa* initially. After treatment both the groups had shown significant result in relieving these symptoms. *Deepana*, *Pachana* and *Grahi* properties of these drugs might

have relieved *Annannabhilasha*, *Avipaka*, *Arochaka*, *Atidrava mala*, *Atibahu mala*. Drugs may also possess *Vatanulomana* properties due to which significant relief might have been observed in the above symptoms. Most of the patients of *Atisara* in both the groups have shown symptoms of mild dehydration which were relieved as soon as the stools became normal. Similarly in both the groups *mala* absorption signs were observed which were also relieved after treatment. As in the *Atisara* *Agnimandya* and production of *Ama* were main pathogenic mechanisms. Most of the patients of both the groups have shown *Sama mala* initially and this was converted with *Nirama* after one week of treatment. It may be presumed that the drugs due to their *Pachana* effect might have helped in digestion of *Ama* and in the improvement of *Agni*.

The pathological investigations of stools have shown significant changes in *Vatsakadi* syrup treated group i.e. 70% whereas insignificant – only 31% result was observed in the cases of *Balachaturbhadra* group. In group A, 76% of the patients were cured and in the group B 40% of the patients were cured. While 8% of the patients of group A and 32% of group B were unchanged. Though both the *Vatsakadi* and *balchaturbhadra* syrups have shown significant result in relieving *Atisara*. It has been seen that the *Vaisakadi* syrup had better effect on *Atisara*. The better clinical improvement of *Vatsakadi* syrup may be due to the action of alkaloids present in it.

## CONCLUSION

Incidence of *Atisara* is high in children below 4 years. Poor hygienic condition and consumption of unprotected water are precipitating factors of *Atisara*. Both groups have shown highly significant results in relieving the symptoms of *Atisara*. Signs and symptoms of dehydration and mal-absorption have also shown significant results in both groups. *Vatsakadi* group shown 70% results & *Balachaturbhadra* group shown 31% results in pathological investigations of stool. In *Vatsakadi* group 76% patients are completely cured, whereas in *Balachaturbhadra* group only 40% patients are completely cured. Hence *Vasakadi* syrup seems to be more effective in *Atisara*.

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