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# Role of *Shamanaushadhi* in Typhoid Fever - An Observational Clinical Study

Saurabh Parauha,<sup>1</sup> M. A. Hullur,<sup>2</sup> Prashanth. A. S.<sup>3</sup>

<sup>1</sup>Post Graduate Scholar, <sup>2</sup>Guide and Ex- Principal, <sup>3</sup>Prof. and H.O.D., Department of Kayachikitsa, Ayurveda Mahavidyalaya, Hubli, Karnataka, India.

## ABSTRACT

Typhoid fever is an acute illness associated with fever that is most often caused by the *Salmonella typhi* bacteria. Once the bacteria is ingested it quickly multiplies within the *stomach, liver or gall bladder* and finally enters the blood stream causing symptoms like fever, headache etc. these cases as of 2010 caused about 190000 deaths up from 137000 in 1990 in whole world, India, Pakistan and Egypt are also known high risk area for developing this disease. A clinical study comprising of 15 patients of either sex attending OPD clinic of AMVH Hubli and presenting with clinical manifestation of *Typhoid* confirmed by Widal test were selected for observational study. All the patients received *Sanjivani Vati* 2 tab. bid with *Kiratadisapta Kashaya* (20 ml) twice daily after food. It was given for 21 days and follow up period was of 1 month with weekly visit. From the result obtained we can conclude that therapy with this Ayurvedic combination of drugs shown significant relief ( $p < 0.001$ ) in symptoms after 21 days of treatment.

**Key words:** Typhoid fever, *Sanjivani Vati*, *Kiratadisapta Kashaya*.

## INTRODUCTION

Typhoid, also known as enteric fever is a life threatening disease that is caused due to an infection by the bacterium *Salmonella typhi*. According to the CDC (Center for Disease Control) almost 21.5 million people in developing countries contract typhoid each year. In 2000, it was estimated that over 2.16 million episodes of Typhoid occurred worldwide, resulting in 2,16,000 deaths, and that more than 90% of this morbidity and mortality occurred in Asia. India, Pakistan, and Egypt are also

known high-risk areas for developing this disease.

Air pollution, water pollution and soil pollution are also responsible for many Bacterial Diseases. Typhoid fever is one amongst these diseases which is mostly attributed to polluted water. The bacterium that causes Typhoid fever may be spread through poor hygiene habits and public sanitation conditions, food or water contaminated with the fecal materials of an infected person and sometimes also by flying insects feeding on feces. Public education campaigns encouraging people to wash their hands after defecating and before handling food are an important component in controlling spread of the disease.

The bacterium *Salmonella typhi* is present only in human beings and is transmitted through contaminated food or water. People with this infection carry the bacterium in their intestines and bloodstream and those who have recovered from the disease could still have the bacterium in their system; they are known as 'carriers' of the disease. Both ill people and carriers shed *Salmonella typhi* in their stool. Infection is usually spread when food or water is handled by a person who is shedding the

### Address for correspondence:

Dr. Saurabh Parauha

Post Graduate Scholar, Department of Kayachikitsa, Ayurveda Mahavidyalaya Hubli, Karnataka, India.

E-mail: emailtosaurabhparauha@gmail.com

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bacterium or if sewage water leaks into drinking water food that is then consumed. Once the bacterium is ingested it quickly multiplies within the stomach, liver or gallbladder and finally enters the blood stream causing symptoms like fever, rashes (flat, rose-colored spots), vomiting, loss of appetite, headaches, general fatigue. In severe cases one may suffer from intestinal perforations or internal bleeding, diarrhea or constipation. One of the characteristic symptoms of typhoid is a 'step ladder fever'.

Typhoid fever is treated with antibiotics. Resistance to multiple antibiotics is increasing among Salmonella that cause typhoid fever. Reduced susceptibility to Fluoroquinolones (e.g., ciprofloxacin) and the emergence of multidrug-resistance has complicated treatment of infections. Recently, it has been demonstrated that many human pathogenic bacteria have developed resistance against several synthetic drugs. There are several reports on antimicrobial activity of crude extracts prepared from plants that inhibit various bacterial pathogens, but a limited numbers of in vitro studies on herbal preparations have been published. It is need of the hour to identify antibacterial potential of herbal products based on diseases for which no medicine or only palliative therapy is available. Hence an attempt was made to screen the antibacterial potential of herbal preparations in the control and prevention of enteric bacterial infection.

The above said Typhoid symptomatology resembles to many of the condition explained in the Ayurveda such as *Pittolavana Sannipataja Jwara*,<sup>[1]</sup> *Vishama Jwara*<sup>[2]</sup> etc. as many symptoms like *Sirahshoola*, *Antaradaha* and *Bahirdaha*, *Gaurava*, *Sweda*, *Nabhi Parshwa Peeda*, *Vitsanga*, *Atisara*, *Antragata Raktastrava*, *Gatre cha bindworakte* are similar to that of typhoid fever.

## OBJECTIVE OF THE STUDY

To assess the efficacy of *Sanjivani Vati* with *Kiratadisapta Kashaya* in enteric fever / Typhoid fever.

## MATERIALS AND METHODS

The following materials were used in the Clinical Trial.

1. *Sanjivani Vati*<sup>[3]</sup>
2. *Kiratadisapta Kashaya*<sup>[4]</sup>

### Study Design

**Sample size:** A minimum of 15 subjects diagnosed as Typhoid fever and fulfill the Inclusion criteria were selected incidentally and advocated for combination treatment for the study.

### Source of Data

Subjects attended the OPD and IPD of Post Graduate Department of Kayachikitsa, Ayurveda Mahavidyalaya and Hospital, Hubli, were selected as per the assessment criteria.

### Method of collection of data

- a. Subjects attending OPD and IPD of Post Graduate Department of Kayachikitsa, Ayurveda Mahavidyalaya and Hospital Hubli were made and Subjects fulfilling the criteria of diagnosis as per the proforma were selected for the study.
- b. Review of literature was collected from Post Graduate Library, Department of Kayachikitsa A.M.V. and Hospital, Hubli and from Authentic Research Journals, Websites, Digital Publications etc.
- c. The drugs required for the clinical study were procured and prepared in the department of Rasa Shastra and Bhaishajya Kalpana, Ayurveda Mahavidyalaya, Hubli.
- d. The data which were obtained by the clinical trials were statistically analysed by applying 't'test.

### Inclusion criteria

1. Subjects of age between 20 years to 50 year of age of either sex.
2. Subjects having history of fever with mild to moderate degree.
3. Subjects having clinical feature of Typhoid fever.
4. Subjects having Widal test positive.

**Exclusion criteria**

1. Subjects below 20 years and more than 50 years.
2. Subjects having temperature more than 101°F.
3. Subjects having fever due other cause with Widal positive.

**Withdrawal criteria**

1. If the patients having clinical feature would aggravated into secondary infection.
2. If the patient is irregular in the decided course of treatment.

**Interventions**

- Subjects were given *Sanjivani Vati* with *Kiratadisapta Kashaya Churna*; the subjects were advised to boil 20g. of *Kasahya Churna* in 80ml of water and reduce to 20ml. They were asked to take 20ml twice daily after food.
- *Pathya Ahara* and *Vihara* were advised to the Subjects.

**Duration:** 21 days.

**Follow up:** 1 month with weekly visit.

**Assessment Criteria****1. Subjective parameter**

- Fever
- Red rashes over neck (Rose spot)
- Headache
- Sweating
- Abdominal Pain
- Constipation or Diarrhoea
- Coated tongue ( V tongue)

**2. Objective parameter**

- Widal test positive

**Gradation of Clinical feature****1. Headache**

- Severe - 3 (Uncontrolled headache)

- Moderate - 2 (Occasional headache)
- Mild - 1 (Can be tolerated without medication)
- Nil - 0 (No headache)

**2. Fever**

- High grade - 3 ( >102° F)
- Moderate - 2 ( 99.6° F- 102° F)
- Low grade - 1 ( 97.6° F- 99.6° F)
- Nil – 0 ( <97.6° F)

**3. Colic Pain**

- Severe - 3 ( Continuous)
- Moderate - 2 ( Intermittent)
- Mild - 1 ( Dull ache)
- Nil - 0 ( No pain)

**4. Constipation**

- Severe - 3 ( Passing scanty stool after prolonged straining)
- Moderate - 2 ( Passing stool on straining)
- Mild - 1 ( Occasionally hard stool)
- Nil - 0 ( No constipation)

**5. Diarrhea**

- Severe - 3 (Watery stool passing 4-5 times in a day)
- Moderate - 2 (Watery stool passing 2-3 times in a day)
- Mild - 1 (Watery stool passing once in a day)
- Nil - 0 ( No watery stool)

**6. Sweating**

- Nil - 0 (Sweating absent)
- Mild - 1 (Sweating at the time of fever)
- Moderate - 2 (Continuous sweating)
- Severe - 3 (Profuse sweating)

**7. Rose Spot**

- Nil - 0 (No Spot)

- Mild - 1 (0-5)
- Moderate - 2(6-15)
- Severe - 3(>15)

#### 8. Coated Tongue

- Nil - 0 (Normal)
- Mild - 1 (Coated at middle)
- Moderate - 2 (Partially Coated)
- Severe - 3 (Fully coated)

#### 9. Widal test

- Ratio - 1:320 - 3
- Ratio - 1:160 - 2
- Ratio - 1:80 - 1
- Ratio - 1:40 - 0

#### STATISTICAL ANALYSIS

Lakshana	BT	AT	X	SD	SE	t	P	Remark
Headache	2.2 66	0.2 66	2.0 0	0.7 7	0.1 47	13.4 2	<0.0 001	HS
Fever	1.6 6	0.0 0	1.6 6	0.3 8	0.0 98	20.4 0	<0.0 001	HS
Colic pain	1.5 3	0.0 0	1.5 3	0.5 0	0.1 3	11.6 3	<0.0 001	HS
Constipation	1.2 3	0.1 3	1.0 67	0.7 1	0.1 9	6.09	<0.0 001	HS
Sweating	1.2 6	0.0 6	1.2 5	0.7 93	0.1 93	6.21	<0.0 001	HS
Rose spot	1.0 0	0.0 0	1.0 0	0.6 32	0.1 6	6.13	<0.0 001	HS
Coated tongue	2.3 3	0.0 0	2.3 3	0.7 9	0.2 0	11.4 4	<0.0 001	HS
Widal test	2.1 3	0.6 6	1.4 73	0.4 9	0.1 28	11.4 06	<0.0 001	HS

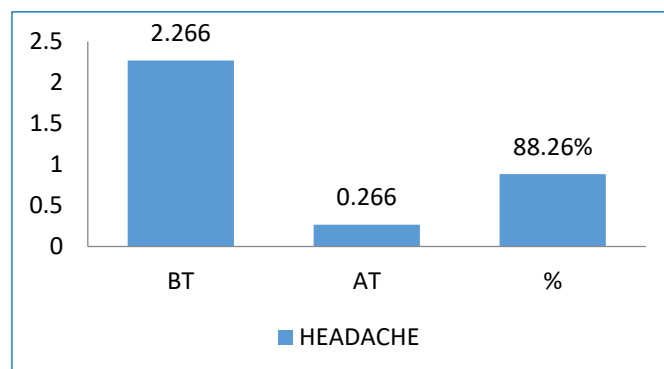
#### OBSERVATION AND RESULTS

Effect of therapy on subjective and objective parameters such as headache, fever, sweating, constipation, colic pain, rose spot, coated tongue and widal test were assessed and obtained results were statistically analyzed by applying student 't' test.

In this present clinical study 15 subjects were registered based on the inclusion criteria.

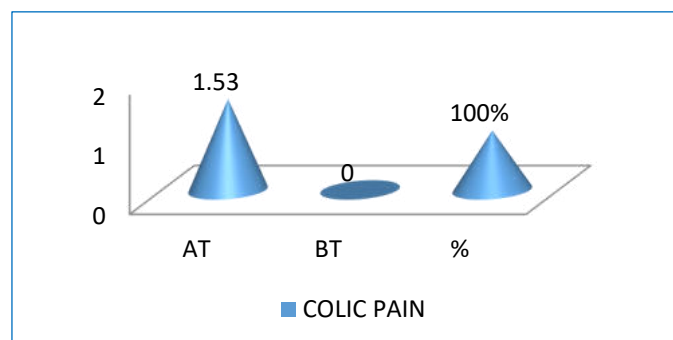
#### Headache

15 subjects presented with this symptom the mean value of BT and AT was 2.266 and 0.266 respectively which provide 88.26% relief which is statistically highly significant at  $t = 13.42$  and  $p < 0.001$ .



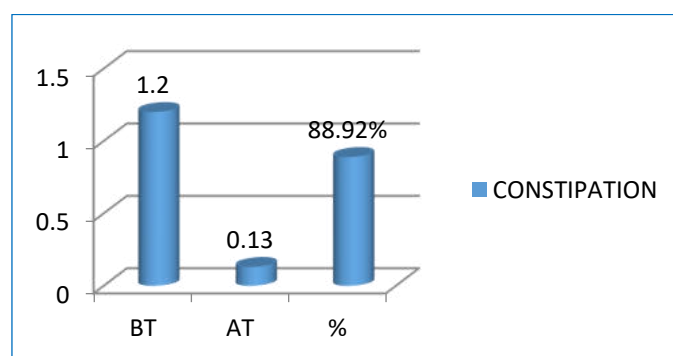
#### Colic pain

15 subjects presented with this symptom the mean value of BT and AT was 1.53 and 0.00 respectively which provide 100% relief which is statistically highly significant at  $t = 11.63$  and  $p < 0.001$ .



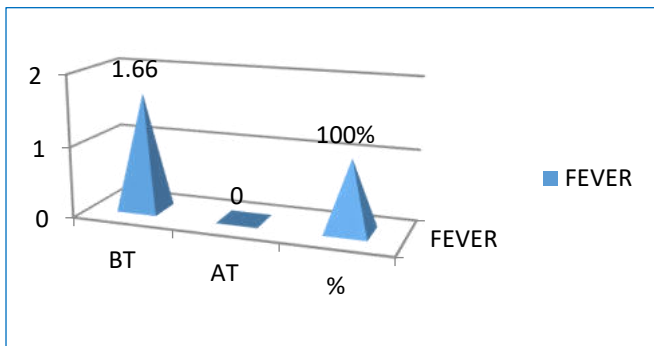
#### Constipation

10 subjects presented with this symptom the mean value of BT and AT was 1.2 and 0.13 respectively which provide 88.92% relief which is statistically highly significant at  $t = 6.09$  and  $p < 0.001$ .



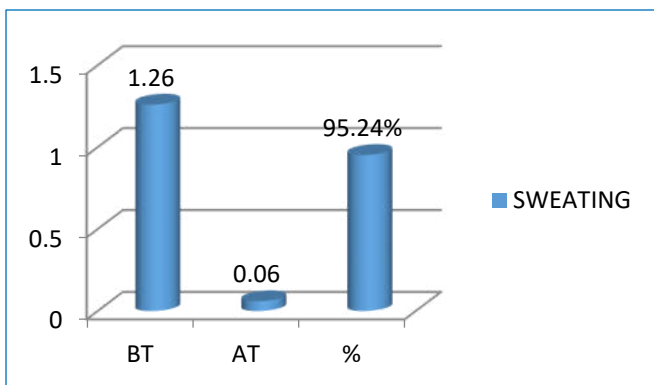
**Fever**

10 subjects presented with this symptom/sign the mean value of BT and AT was 1.66 and 0.00 respectively which provide 100% relief which is statistically highly significant at  $t = 20.40$  and  $p < 0.001$ .



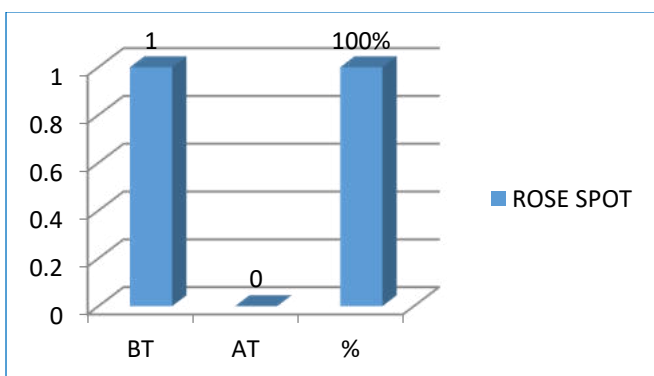
**Sweating**

10 subjects presented with this symptom the mean value of BT and AT was 1.26 and 0.06 respectively which provide 95.24 % relief which is statistically highly significant at  $t = 6.21$  and  $p < 0.001$ .



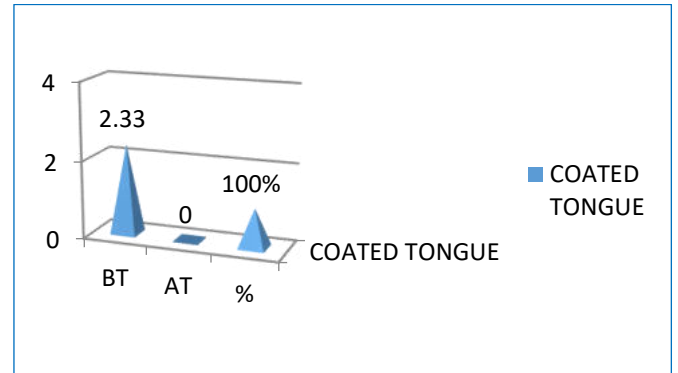
**Rose spot**

10 subjects presented with this symptom/sign the mean value of BT and AT was 1.00 and 0.00 respectively which provide 100 % relief which is statistically highly significant at  $t = 6.13$  and  $p < 0.001$ .



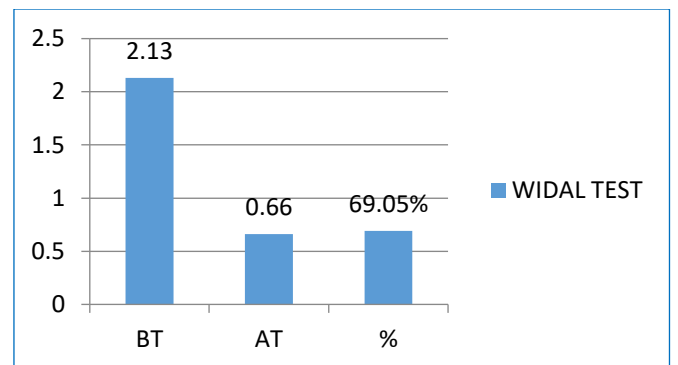
**Coated tongue**

10 subjects presented with this sign the mean value of BT and AT was 2.33 and 0.00 respectively which provide 100 % relief which is statistically highly significant at  $t = 11.44$  and  $p < 0.001$ .



**Widal test**

10 subjects presented with this test the mean value of BT and AT was 2.13 and 0.66 respectively which provide 69.05% relief which is statistically highly significant at  $t = 11.40$  and  $p < 0.001$ .



**DISCUSSION**

Plenty of disorders have been found referred in the ancient Vedic literature either directly naming the disease itself or by hinting the nature of disorder. Typhoid fever symptomatically resembles many of the conditions explained in classical texts such as *Pittaulbana Sannipataja Jwara*, *Visham Jwara* etc.

The *Nidanas* which are explained for *Janapadodhwansa (Dooshita Jala, Dooshita Anna)* are considered to be the main *Nidaanas* of *Pittaulbana Sannipataja Jwara* which are very similar to the causative factors of Typhoid fever in modern.

As the symptoms of Typhoid fever are fever, headache, abdominal disturbances, red rashes etc.



are due to the bacteria salmonella typhi and salmonella paratyphi. To treat the disease we should have the drugs which are *Amapachaka*, *Shoolaprashamana*, *Tridoshahara*, *Srotoshodhaka*, *Swedajanana*, *Krimighna* and *Jwaraghna*. These properties are found in *Sanjivani Vati* and *Kiratadisapta Kashaya* which are *Katu*, *Tikta*, *Kashaya*, *Laghu*, *Teekshna Guna* and all the above said properties.

#### Probable mode of action of *Sanjivani Vati*

The term *Sanjivani* literally means - life, and the one which gives life is known as '*Sanjivani*'. It contains mainly *Shunthi*, *Triphala*, *Guduchi*, *Yastimadhu*, *Bhallataka* and *Vatsanabha*. *Vatsanabha* contains Aconite which is alloyed to be an antipyretic, the reduction of temperature being due to various causes,

1. The slowing of the circulation, diminishing the metabolism.
2. The peripheral action of Aconite, causing dilatation of cutaneous blood vessels.
3. The depressing action of the drugs upon all muscles tissue.

The drug seems to exert a peculiarly beneficial influence on mucous membrane, all acute inflammatory condition of intestinal canal. [5]

It is used in *Sannipata*, *Vatakaphaja Jwara* and *Jwaratisara*. (API 1999)

#### Probable mode of Action of *Kiratadisapta Kashaya*

The bitterness, antihelminthic, hypoglycemic and antipyretic properties are attributed to amarogentin (most bitter compound isolated till date), swerchirin, swertiamarin and other active principles of the *Kiratatikta*. The herb is an excellent drug for strengthening the stomach.

*Patha* is having anti-inflammatory, antiulcer, antidiarrhoeal, antiprotozoal, antibacterial and antioxidant property which was proved in animals.

The cytoprotective and gastric anti-ulcer studies of *Shunthi* have been carried out in albino rat which suggest that it has cytoprotective and anti-

ulcerogenic effect of ginger. The studies suggested that it is antiviral, antidiarrhoeal, anti-inflammatory, and antipyretic action.

#### Discussion on Results

The trial drugs due to their *Deepana*, *Pachana*, *Anulomana*, *Krimighna* and *Swedajanana* property increases the *Jatharagni* and helped to reduce the *Ama* which is the main cause for Fever. It facilitates the *Malappravratana* and *Swedajanana* which reduces the temperature of the body. Due to *Krimighna* property of the combination of the drugs it kills the microscopic and macroscopic *Krimi* in the body which are the causative organism of the fever in Typhoid fever. All the subjects showed almost statistically highly significant results in all the subjective and objective parameters.

#### CONCLUSION

Typhoid, a commonly seen condition, has been explained in our classics under different headings. The incidence of Typhoid is found to be more in people taking food from outside. Majority of hypertensive patients had Headache, Fever, colic pain, constipation/diarrhea, as common complaints. It can be said with full confidence that Typhoid can efficiently and effectively be managed with Ayurvedic drugs along with the life style modification, habits and food habits in accordance with the principles told in Ayurveda and the complications be prevented.

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