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Ayurvedic management of Tamaka Shwasa by Avleha Kalpana: A systematic review

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Abstract: Background: Tamaka Shwasa (TS) is one of the most common chronic respiratory tract diseases, with an incidence that rises every year. In Ayurveda various Avleha shows solution to this problem. Avleha a secondary dosage form of Kwatha kalpana prepared by decoction or extracts of different herbs by adding sweetening agents, Prakshepa Dravya, Ghrita and Honey which is easy to administrate, palatable and long shelf life popular in children and old age people also.

Methodology: A systematic review was carried out using published literature obtained through “PubMed” until Oct 2022. The key words used for literature first search include “Avleha, Avaleha, Avleha kalpana, Avaleha kalpana.”In second search “Avleha, Avaleha, Avleha kalpana, Avaleha kalpana, Tamaka Shwasa, Asthma and Bronchial Asthma”.

Results and Discussion: Total 35 articles were searched in computer based search engine. After screening 8 articles were found to be used for the management of TS. Avleha prepared from Swaras and Kwath of same plant, or Avleha prepared from the bark and the heartwood of same plant, or changed into Granular form shows positive activity against TS.

Conclusion: This systematic review aimed to collect and assess data from clinical Trail, In-Vivo And In-Vitro study of Avleha in the management of TS. Being a global public health crisis, it is highly recommended to carry out more clinical trials on TS patients using Avleha kalpana drugs and therapeutic regimens.

Key Words: Avleha, Tamaka Shwasa, Bronchial Asthma, Ayurveda.

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Introduction:

Tamaka Shwasa (TS) is one of the most common chronic respiratory tract diseases, with an incidence that rises every year [1]. Avaleha is a semisolid preparation prepared by solidifying any of the liquid preparations of herbal drugs along with desired quantity of sweetening agents, fine powder of medicinal drugs as prakshepa dravyas and ghrita or madhu[2].

The word Avleha derived from the root word “Lih Aswadane” in which “Lih” means substance which licked “Aswadane ” is termed as good taste. [3]

According to Aacharya Sushruta, when natural the movement of Prana Vayu is hampered by Kapha dosha and the upward movement of Vata is enhanced which leads to the origin of Shwasa Roga [4]. This condition is correlate with the disease Bronchial Asthma which shows same symptoms. Many avleha are used in treating Shwasa Vyadhi which are mentioned in classical text. The symptoms like recurrent episodes of wheezing, breathlessness, chest tightness, and coughing, particularly at night or in the early morning are correlate with shwas roga in Ayurveda. Now a days due to low immunity in people and increase in air pollution number of cases are increased. Now this becomes a worldwide problem due to increase in millions of cases each year.

Methodology: A systematic search strategy was adopted using “PubMed

(US National Library of Medicine, USA)” for the main search process. The key words used for the purpose of PUBMED first search include “Avleha, Avaleha, Avleha kalpana, Avaleha kalpana.” In second search “Avleha, Avaleha, Avleha kalpana, Avaleha kalpana, Tamaka Shwasa, Asthma and Bronchial Asthma”. No limits were adopted such as; journals, years of publication, language, types of articles, or authors, but the articles published in English language full text available only were included for the purpose of review. So mainly Pubmed Central (PMC) articles were selected. Above search was done purposefully to obtain a comprehensive list of articles published until Oct 2022 without the above-mentioned limits. This systematic review aimed to collect and assess data from Clinical Trail, In Vivo study And In Vitro study.

Observation and Results: Total 29 articles were searched in computer based search engine using the “Avleha, Avaleha, Avleha kalpana, Avaleha kalpana” words. On addition of words “Tamaka Shwasa, Asthma and Bronchial Asthma” to above search 6 articles were searched by search engine. After screening and removing of duplicate articles, reviewed articles and Standardisation articles 8 article was finally selected. Only articles of avleha which shows Clinical Trail, In vivo study And In Vitro study was selected finally.

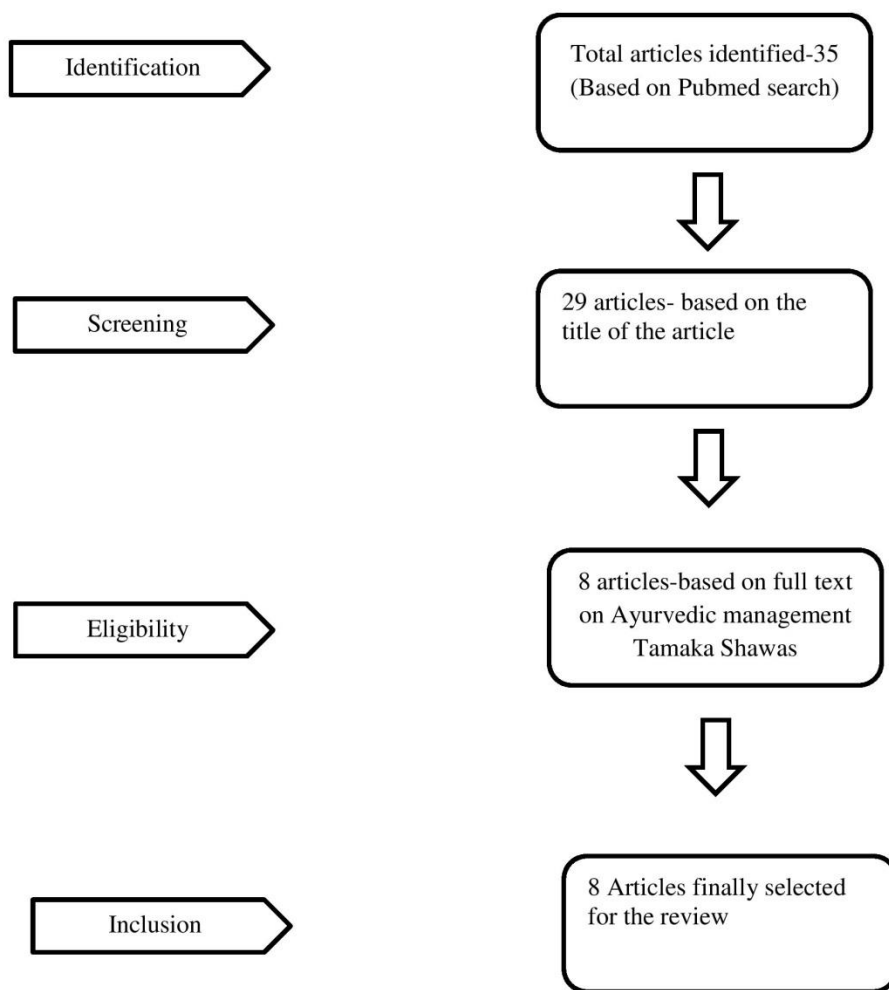


Figure 1: Flow of information through different phases of this systematic review (As per PRISMA guidelines)

Table 1: Tamaka Shwasa Management by Avleha:

Sr. No	Author	Journal and YOP	Study Type	Therapeutic regimen/drugs	Sample size and inclusion criteria	Place of study	Major outcomes
1	Paneliya, et al. [5]	AYU Journal / 2015	Clinical Trial	Vasa Avaleha (VA) and Granules of Vasa Avaleha (GVA)	Total of 66 patients between the age of 12 and 70 years of either sex with mild persistent cases of	IPGT & RA, GAU, Jamnagar, Gujarat, India	study revealed that both trial drugs are effective in the treatment of Tamaka Shwasa without

					bronchial asthma		manifesting any adverse reactions
2	Ram and Baghel [6]	AYU Journal / 2015	Clinical Trial	Vyaghriharitaki Avaleha (VHA),	Total of 66 patients between 16 and 70 years of either sex with a history of uncomplicated chronic bronchitis	IPGT & RA, GAU, Jamnagar, Gujarat, India	The study shows effective in chronic bronchitis showing better improvements in both primary and secondary outcome measures.
3	Dubey, et al.[7]	AYU Journal / 2014	Clinical Trial	Ashtangavaleha and Vyaghreehareetakee Avaleha	Total 100 Children with clinical features of Tamaka Shwasa with the age limit of 2-16 years of either sex	IPGT & RA, GAU, Jamnagar, Gujarat, India	The study shows better efficacy of Ashtangavaleha (66.66%) in comparison to Vyaghreehareetakee Avaleha (63.15%) on the overall condition of the patients even though the superiority was statistically insignificant (>0.05).
4	Yadav, et al. [8]	AYU Journal / 2012	Clinical Trial	Shirishavaleha prepared by Kwatha (decoction) of Twak (bark) and Sara (heartwood) of Shirisha	63 Patients between 20-60 yrs of either sex with symptoms of difficult breathing, Paroxysmal attacks of Dyspnoea, Difficult expectoration	IPGT & RA, GAU, Jamnagar, Gujarat, India	Maximum 50% of the patients were shown moderate improvement, followed by 21.15% patients with marked improvement and 19.23% with mild improvement. 11.54 % of the registered patients did not show much

							change. Group - B is found to be marginally better than Group - A
5	Sharma, et al. ^[9]	AYU Journal / 2011	Clinical Trial	Shvashara Leha and Vasa Haritaki Avaleha	Total 40 patients between Age group 16–60 yrs of either sex showing Chronicity less than 10 years and has Uncomplicated cases of Tamaka Shwasa	IPGT & RA, GAU, Jamnagar, Gujarat, India	The study indicate that the Vasa Haritaki Avaleha provided better relief than Shvasahara Leha in Tamaka Shwasa
6	Gohel, et al. ^[10]	AYU Journal / 2011	Clinical Trial	Bharangyadi Avaleha and Vasa Avaleha	26 Children between Age group between 2 and 10 years having classical symptoms of Tamaka Shwasa	IPGT & RA, GAU, Jamnagar, Gujarat, India	Bharangyadi Avaleha and Vasa Avaleha both showed approximately equal effect.
7	Yadav et al. ^[11]	IJAR / 2010	In Vivo Study	Shirishavaleha prepared by Kwatha (decoction) of Twak (bark) and Sara (heartwood) of Shirisha	24 Wistar strain albino rats of either sex weighing 200 ± 20 g divided into four groups with six animals in each group were used for the study	IPGT & RA, GAU, Jamnagar, Gujarat, India	The formulation made from heartwood showed a weak anti-inflammatory activity in this model while that made from the bark produced a considerable suppression of edema
8	Gupta et al. ^[12]	Ante Science of life / 2009	Clinical Trial	Vasaavaleha prepared by Swaras and Kwath of Vasa Plant	35 patients with clinical features of Shwasa with the age limit of 10–70 years of either sex	IPGT & RA, GAU, Jamnagar, Gujarat, India	Vasaavaleha prepared by Swaras shows better result than Vasa avleha prepared from Kwath

Discussion:

8 different studies were carried on Tamaka Shawsa using different avleha. Out of which 7 were clinical studies and 1 was In-Vivo study. Table 1 summarizes the properties of Avleha used in the management of Tamak Shwasa.

1) Paneliya, et al. conducted an Open-label randomized clinical study to evaluate the adjunct properties of Vasa avleha (VA) and modified dosages form as Vasa avleha Granules (GVA). VA used in this study is composed of Vasa (*Adhatoda vasica* Nees.)- leaf 1 part, Sharkara (Sugar candy) 1/2 part, Go-Ghrita (Clarified butter) 1/8 part, Pippali (*Piper longum* Linn.)- Fruit 1/8 part, Madhu (Honey)- 1/2 part. GVA composed of Vasa (*Adhatoda vasica* Nees.)- leaf 1 part, Sharkara (Sugar candy) 1 part, Go-Ghrita (Clarified butter) 1/8 part, Pippali (*Piper longum* Linn.)- Fruit 1/8 part, Madhu (Honey)- 1/10 part. They conduct the trial from outdoor and indoor patient department IPGT and RA Hospital, Jamnagar. Group A (n = 32) received VA, while Group B (n = 34) received GVA at dose of 6 g twice a day with lukewarm water in the morning and evening for the duration of 28 days. Follow-up period was 14 days in both groups. Efficacy of the trial drugs was analysed by specific grading pattern including asthma control questionnaire and asthma control test in terms of relief observed in cardinal signs and symptoms before

and after treatment. Complete remission was not found with any of the drugs. At the end of treatment, moderate improvement was found in 25.93% patients in Group A while 32.26% in Group B; mild improvement was found in 66.67% in Group A while 64.52% in Group B.

2) Ram and Baghel conducted a study to evaluate the clinical efficacy of Vyaghriharitaki Avaleha (VHA) in the management of chronic bronchitis. 66 Patients of chronic bronchitis were selected from Outdoor and Indoor patient department (OPD/ IPD) of IPGT and RA Hospital, Gujarat Ayurved University, Jamnagar. VHA contains ingredients -Kantkari (*Solanum xanthocarpum*)- Whole plant 4.8kg, Haritaki (*Terminalia chebula*)- Fruit 100 in no., Sunthi (*Zingiber officinalis*)- Rhizome 96gm, Pippali (*Piper longum*)- Fruit 96gm, Maricha (*Piper nigrum*)- Fruit 96gm, Twak (*Cinnamomum zeylanicum*)- Stem Bark 48gm, Ela (*Elettaria cardamomum*)- Fruit 48gm, Tejpatra (*Cinnamomum tamala*)- Leaf 48gm, Nagkesar (*Mesua ferrea*)- Stamen 48gm, Guda (Jaggery) - 12.288 litres, Madhu (Honey)- 288gm [13]. It was observed that 89.52% patients got marked positive response with the treatment, whereas 9.84% got moderate (50–75%) positive response. The remaining 1 (1.64%) patient did not get any significant change in his condition. This overall effect of the therapy shows that Vyaghriharitaki is very effective in

the management of chronic bronchitis showing better improvements in both primary and secondary outcome measures.

- 3) Dubey, et al conducted a study to evaluate the clinical efficacy of Ashtangavaleha and Vyaghreehareetakee Avaleha on Tamaka Shwasa (Bronchial Asthma) in Children. Ashtangavaleha Katphala (*Myricaesculenta* Buch- Ham)- Stem bark, Puškaramūla (*Inularacemosa* Hook. f.)- Root, Shrunḡi (*Pistaciaintegerrima* Stew.) - Gall, Yavani (*Trachyspermumammi* Linn.)- Fruit, Karvi (*Carum carvi* Linn.)- Fruit, Sunḡhi (*Zingiber officinale* Roscoe).- Rhizome, Marica (*Pipernigrum* Linn.)- Fruit, Pippali (*Piper longum* Linn.)- Fruit all in equal proportion and Madhu (Honey) -12 part and Adrak Swaras for bhavana [14] and Vyaghreehareetakee Avaleha ingredients mentioned earlier. The study was conducted on Out Door Patient Department (OPD) of Kaumarbharitya, IPGT and RA, Gujarat Ayurved University, Jamnagar. 100 patients suffering from Tamaka Shwasa were selected, total 74 patients completed the course of treatment. In group Ashtangavaleha (AG), 36 patients while in group Vyaghreehareetakee Avaleha (VG), 38 patients completed the course of treatment received (5-15g in divided doses) for 8 weeks duration. The study shows Ashtangavaleha is marginally more effective in comparison to Vyaghreehareetakee Avaleha in the

management of Tamaka Shwasa in children even though the superiority was statistically insignificant (>0.05).

- 4) Yadav, et al conducted a study of two different samples of Shirishavaleha in Tamaka Shwasa. Shirshavaleha was prepared from prepared by Kwatha (decoction) of Twak (bark) and Sara (heartwood) of Shirisha to evaluate its comparative efficacy in Tamaka Shwasa. Shirishavaleha contains Shirisha (*Albizzia lebbeck* Benth)- Bark/Heart Wood, 50 Parts, Pippali (*Piper longum* Linn.)-Fruit, 1 Part, Priyangu (*Callicarpa macrophylla* Vahl.)- Flower, 1 Part, Kushta (*Saussurea lappa* C. B. Clarke)- Root 1 Part, Ela (*Elettaria cardemomum* Maton.)- Seed 1 Part, Nilini (*Indigofera tinctoria* Linn.)- Root, 1 Part, Haridra (*Curcuma longa* Linn.)- Rhizome, 1 Part, Daruharidra (*Berberis aristata* DC.)- Stem, 1 Part, Shunthi (*Zingiber officinale* Roscoe.)- Rhizome, 1 Part, Nagakesara (*Mesua ferrea* Linn.)- Stamen 1 Part, Guda (Jaggery) - 200 Parts, Jala (w/w) (Potable water) - 500 Parts. 63 patients between 20-60 yrs with signs and symptoms of Tamaka Shwasa as described in Ayurvedic classics were selected for studies. The study was conducted at OPD and IPD of Rasashastra and Bhaishajya Kalpana including Drug Research, IPGT and RA, Gujarat Ayurved University, Jamnagar. Patients of Group A received Shirishavaleha prepared with Twak, while patients of Group B received Shirishavaleha prepared with Sara.

The dose in both the groups was 10g twice a day with luke warm water for 28 days. Shirishavaleha prepared either with bark or heartwood can be used in the therapeutic management of Tamaka Shwasa (bronchial asthma), which is safe and free from adverse drug reactions.

- 5) Sharma, et al. conducted a comparative study of Shvasahara Leha and Vasa Haritaki Avaleha in the management of Tamaka Shwasa. Shvasahara Leha was prepared by Bharangi (*Clerodendrum serratum* Linn.)- Root, 600 g, Shirisha (*Albizia lebeck* Benth.)- Bark, 600 g, Bilva (*Aegle marmelos* Corr.)- Root, 600 g, Agnimantha (*Clerodendrum phlomidis* Linn.)- Root, 600g, Shyonaka (*Oroxylum indicum* Vent.) -Root, 600g, Patala (*Stereospermum suaveolens* DC.)- Root, 600 g, Gambhari (*Gmelina arborea* Roxb.)- Root, 600 g, Brihati (*Solanum indicum* Linn.)- Root, 600 g, Kantakari (*Solanum xanthocarpum* Schrad. and Wendl.)- Root, 600 g, Gokshura (*Tribulus terrestris* Linn.)- Root, 600 g, Shalaparni (*Desmodium gangeticum* DC.)- Root, 600 g, Prashniparni (*Uraria picta* Desv.)- Root, 600 g, Haritaki (*Terminalia chebula* Retz.)- Fruit, 600 g, Bibhitaka (*Terminalia bellirica* Roxb.)- Fruit, 600 g, Amalaki (*Emblica officinale* Gaertn.)-Fruit, 600 g, Dugdika (*Euphorbia thymifolia*)- Whole plant, 600 g, Kantakari (*Solanum xanthocarpum* Schrad. and Wendl.) -Whole plant, 600 g, Haridra (*Curcuma longa*

Linn.)- Rhizome, 600 g, Mallasindura- 75 g, Abhraka Bhasma -150 g, Tulasi (*Ocimum sanctum* Linn.)- Leaf, 300 g, Shunthi (*Zingiber officinale* Roxb.)- Rhizome 300 g, Karchura (*Curcuma zedoaria* Rose)- Rhizome, 300 g, Shuddha Dhatura (*Datura metal* Linn.)- Seed, 40 g, Sharkara (Sugar) (*Saccharum officinarum*)-17 kg, Honey - 1 kg.

Vasa Haritaki Avaleha was prepared by Vasa (*Adhatoda vasica* Nees.)- Whole plant, 8.5 kg, Haritaki (*Terminalia chebula* Retz.)- Fruit, 5.44 kg, Vanshalochana (*Bambusa arundinacea* Exudate)- 350 g, Pippali (*Piper longum* Linn.)- Fruit, 45 g, Karkatashringi (*Pistacia integerrima* Stew. ex Brandis Gall)- 100 g, Tvak (*Cinnamomum zeylanicum* Blume)- Bark, 25 g, Tamalapatra (*Cinnamomum tamala* (Buch Ham) Nees and Eberm.)- Leaves, 25 g, Ela (*Elettaria cardamomum* Linn.)- Seed, 25 g, Nagakeshara (*Mesua ferrea* Linn.)- Stamen, 25 g, Sharkara (Sugar) *Saccharum officinarum* - 8.5 kg, Honey - 700 g.

40 patients were selected with age group from 16–60 years, from OPD of Kayachikitsa Dept., IPGT and RA, GAU, Jamnagar with signs and symptoms of Tamaka Shwasa. 5 g of drug was administrate for both group for 2 months with a follow up after 1 month. The study indicate that the Vasa Haritaki Avaleha provided better relief than Shvasahara Leha in Tamaka Shwasa.

6) Gohel, et al. a comparative study was conducted on efficacy of Bharangyadi Avaleha(BA) and Vasa Avaleha (VA) in the management of Tamaka Shwasa with reference to childhood asthma. 26 Children between Age group between 2 and 10 years having classical symptoms of Tamaka Shwasa was selected from the OPD of Kaumarabhritya of IPGT & RA, GAU, Jamnagar, and G G hospital. Dose of Children age (2 to 6 yrs) administrate 6 to 14 g and age (2 to 6 yrs) administrate 15 to 19 g with lukewarm water for six weeks and follow-up for 1 month for both group. Bharangyadi Avaleha contains Bharangi (Clerodendrum serratum Linn.)- 1 part, Kasamarda (Cassia occidentalis Linn.)- 1 part, Vasa (Adhatoda vasica Nees.)- 1 part, Maricha (Piper nigrum Linn.)- 1 part, Pippali (Piper longum Linn.)- 1 part, Haridra (Curcuma longa Linn.)- 1 part, Guduchi (Tinospora cordifolia Miers.)- 1 part, Sunthi (Zingiber officinale Roscoe.)- 1 part, Dhanyaka (Coriandrum sativum Linn.)- 1 part, Madhu - Quantity sufficient (q.s) ., Mishri - q.s., Ghrita - q.s.

Vasa avleha was prepared by Vasa (Adhatoda vasica Nees.)- 64 Tola, Pippali (Piper longum Linn.)- 8 Tola, Madhu - 32 Tola, Mishri - 32 Tola, Ghrit - 8 Tola. (1 Tola = 12 g). In BA group, highest number of patient (63.64%) got markedly improvement, 18.18% was observed with moderate improvement, and 18.18% of patients were observed with complete remission. In VA group, highest number of patients (71.43%) was markedly improved

and 28.57% were observed with complete remission.

7) Yadav et al conducted an animal study on to evaluate the anti-inflammatory activity of Shirishavaleha prepared from two different parts of Shirisha (Albizia lebbek Benth.), viz. the bark (Twak) and the heartwood (Sara). The anti-inflammatory activity was screened by using carrageenan-induced rat paw edema model in albino rats. 24 Wistar strain albino rats of either sex weighing 200 ± 20 g divided into four groups with six animals in each group were used for the study. Phenylbutazone was used as the standard anti-inflammatory drug for comparison with two avleha. The formulation made from heartwood showed a weak anti-inflammatory activity in this model while that made from the bark produced a considerable suppression of edema.

8) Gupta et al conducted a comparative clinical trial of Vasa avleha prepared from Swaras and Kwath of respective plant in the management of Tamaka Shwasa. 35 patients with clinical features of Shwasa was selected from the OPD and IPd of Rasashastra and Bhaishajyakalpna department of IPGT & RA, GAU, Jamnagar with the age limit of 10–70 years of either sex. Both group received dose of 10g twice a day with lukewarm water as anupan for 28 days. Vasaavaleha prepared by Swaras shows better result than Vasa avleha prepared from Kwath.

Conclusion: It was observed that out of 8 articles 7 article was clinical trial and 1 article was Invivo study. All

avleha mentioned during this study shows positive result in the management of Tamaka Shwasa (Bronchial Asthama). As Tamaka Shwasa comes under Yappya type of disease in which patient has to depend upon medicines for the relief so more research is needed in this way.^[15]. In classical text many different single drugs and compound drugs are useful for the management of Tamaka Shwasa. Avleha due easy to administrate, palatable and long shelf life is very popular. As many children's are suffering from this disease due to avleha sweet taste is very easy to administrate. In this systematic review revealed a limited number of human clinical trials. Most studies concluded with significant improvement in symptoms when compared to a variety of controls. But still more avleha mentioned in classical text or its modified dosage form need to be studied.

Conflicts Of Interest: The author declares no conflict of interest.

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