ISSN 2456-3110
Vol 7 · Issue 3
April 2022

JAiMS
INTERNATIONAL

Journal of Ayurveda and Integrated Medical Sciences

www.jaims.in

JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences

Maharshi Charaka
Ayurveda

Indexed

Journal of
Ayurveda and Integrated Medical Sciences
ISSN 2456-3110
ORIGINAL ARTICLE April 2022

A Survey Study on Leech Storage Practices in Ayurveda Hospitals

Sudeepa[1], Gururaj D[2], Sneha A[3]

[1]*Associate Professor, Department of Shalya Tantra, Muniyal Institute of Ayurveda Medical Sciences, Manipal, Karnataka, India.*

[2]*Professor, Department of Shalya Tantra, Muniyal Institute of Ayurveda Medical Sciences, Manipal, Karnataka, India.*

[3]*Final Year BAMS, Muniyal Institute of Ayurveda Medical Sciences, Manipal, Karnataka, India.*

ABSTRACT

Leech therapy is one of the popular treatment method adopted in Ayurveda hospitals. We have conducted a survey study to evaluate the method of collection; storage and maintenance of leeches. Data regarding the leech storage were collected from 31 Ayurveda hospitals, on the basis of a standardized questionnaire. All the responding hospitals practiced leech therapy, mostly with a storage setup in the minor OT. 68% procured leeches during rainy season from the leech suppliers. 42% responders used tap water and plastic jars for storage. 94% of *Ayurveda* hospitals did not subject the water used for storage of medicinal leeches for physiochemical and microbial parameters periodically. There is a need for breeding centers in order to supply of medicinal leeches throughout the year. There is a need for establishing national guidelines for good storage and maintenance of medicinal leeches in India.

Key words: *Medicinal leech, Jalouka, storage, Ayurveda*

INTRODUCTION

Leech therapy is a novel Para-surgical treatment modality adopted in *Ayurveda*. Leeches are named as "*Jalouka*" in ancient classics. *Acharya Charaka* has highlighted *Jalouka* as one of the best Para-surgical treatment.[1] *Acharya Sushruta* has given clear and comprehensive inputs regarding the method of storage and maintenance of leeches.[2] The complications of hirudotherapy, though considered rare, local bacterial infection mainly due to Aeromonas hydrophila.[3,4] American guidelines describe procedure of maintenance of leeches.[5] The United States Food and Drug Administration (FDA) has given medicinal leech, the status of a medical device, which was approved in 2004.[6] The current hospital practices in which leeches are stored before they are used for treatment are not widely available. Therefore, a survey study was planned to evaluate the method of collection, storage and maintenance of leeches in *Ayurveda* hospitals.

Address for correspondence:
Dr. Gururaj D.
Professor, Department of Shalya Tantra, Muniyal Institute of Ayurveda Medical Sciences, Manipal, Karnataka, India.
E-mail: gurushalya@yahoo.co.in

Submission Date: 23/02/2022 Accepted Date: 27/03/2022

Access this article online

Quick Response Code

Website: www.jaims.in

DOI: 10.21760/jaims.7.3.3

AIMS AND OBJECTIVES

To evaluate the procedure of collection of leeches, its storage and maintenance in *Ayurveda* hospitals in India.

MATERIALS AND METHODS

The method of survey was done by questionnaire which was created in Google forms. Its access link was forwarded on March 2021 to *Shalya Tantra* lecturers of various *Ayurveda* colleges, through Whatsapp and Facebook and response was collected in the Google forms application. Data was analyzed thoroughly.

ISSN: 2456-3110 ORIGINAL ARTICLE April 2022

Observations and Results

In the present study, total of 31 *Ayurveda* hospitals were registered and responses were recorded using Google forms. A flow-chart of the study is presented in Fig.10. 68% procured leeches from the leech suppliers, 26% procured leeches from natural habitat, 3% from breeding centers and 3% from both natural habitat as well as from leech suppliers.61% procured leeches during rainy season i.e., from June - September, 19% procured leeches during winter i.e., from October - January, and 19% of respondents procured leeches irrespective of season according to their hospital requirements.

52% Segregated leeches during storage based on size, 10% based on color and 6% based on Collection site and 32% admitted that no segregation was done.55% responders identified the leeches based on *Ayurveda* description, 13% based on Zoological classification and 32% admitted that no identification method was followed.

42% responders used plastic jars for storage of leeches, 26% used mud pot, 26% used aquarium, 3% used glass and plastic jars and 3% used water tank as leech storage container.45% responders used tap water for storage of leeches, 26% used well water, 20% used bore well water, 3% used lake water, 3% used pond water and 3% used water from natural spring in storage container.7% responders changed water on daily basis, 45% changed water every 3 days, 45% changed water every 7 days and 3% responders changed water once in 14 days.

45% responders changed the storage containers once in a month, 20% changed the once in 7 days, 16% changed once in 15days. 3% responders changed the storage containers once in 3months, 3% responders changed the storage containers once in 4 months, 3% used the same containers after washing and 3% responders did not change the storage containers.48% responders used < 5 leeches in one liter of water, 42% stored 5-10 leeches in one liter of water, 7% stored 10-20 leeches in one liter of water and 3% used > 20 leeches in one liter of water in storage containers.

94% responders admitted that no testing of water was done for physiochemical and microbial parameters periodically and only 6% conducted periodical physiochemical and microbial testing of water was done. 68% provided natural environment for leeches inside the leech storage container and 32% said no attempt was done to provide natural environment for leeches. 61% assigned separate room for leeches under room temperature and 39% stored leeches in department or Minor OT.

81% responders admitted that no feed was given to leeches and 19% used to feed for leeches. 90% responders noted, activities of the leeches were observed during storage regularly and 10% did not observe the leeches during storage. 65% opined approximate lifespan of stored leeches was 3-6 months, 29% opined approximate lifespan was 1year and 6% opined approximate lifespan was less than 1 month. 68% observed there was no breeding of leeches during storage and 32% observed successful breeding of leeches.

Discussion

This survey provides information regarding current practices of storage and maintenance of leech in *Ayurveda* hospitals. This survey showed that all the *Ayurveda* hospitals use leech therapy confirming its wide usage and popularity.

Majority procured leeches from the leech suppliers because of practical difficulties in collection from their natural habitat like pond and lakes and additional skills and time is required for collection of medicinal leeches.

Majority of *Ayurveda* hospitals procured medicinal leeches during rainy season June-Sept because medicinal leeches usually breeds, during June to August and therefore they are abundantly found in rainy season.

There is a need for breeding centers which may help supply of medicinal leeches throughout the year. Majority followed segregation based on size probably depending on the site of application on the patient. Sterile containers with sterile gauze, is recommended for storage of medicinal leeches as per Ricarimpex.[3]

ISSN: 2456-3110 ORIGINAL ARTICLE April 2022

Majority used tap water and well water for medicinal leech storage probably depending upon the type of water facility in their institution. As leeches are amphibious and they are exclusively found in fresh water therefore fresh water is essential for storage. Ricarimpex a French international supplier of medicinal leeches recommends mineral water, mountain spring water or distilled water with hirudo salt for storage of medicinal leeches.

Most adopted 3 days and 7 days time interval for change of water in the storage containers. Ricarimpex, a French international supplier of medicinal leeches, recommends change of water at least once a week. Most changed the storage containers once in a month. Disinfection and thorough rinsing is necessary before the storage of leeches. Majority stored less than 5-10 medicinal leeches in a liter of water.

Majority of *Ayurveda* hospitals did not subject the water used for storage of medicinal leeches for physiochemical and microbial parameters periodically. Water with optimal physiochemical quality provides better environment for growth and life of leeches and microbial parameters of water is important for preventing local infection at the site of bite.[3]

Majority of *Ayurveda* hospitals did not give any special attention to provide natural environment for medicinal leeches inside the storage containers. Motility is an important factor to assess the well being of medicinal leeches. *Acharya Sushruta* has advised to use active or motile leeches for medicinal use.

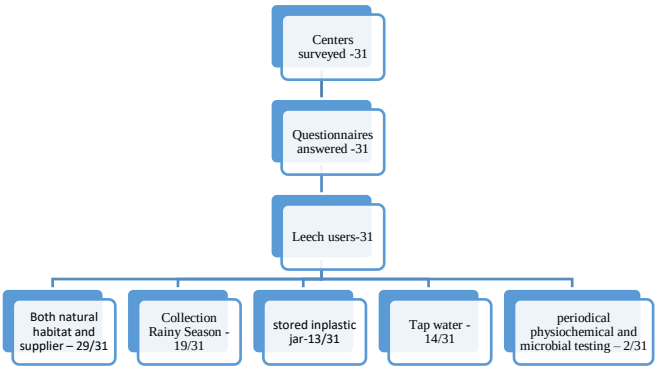
Majority of *Ayurveda* hospitals kept the medicinal leech storage containers in separate rooms with no temperature control. Medicinal leeches are usually found in cool and damp climatic regions. Medicinal leeches are sensitive to light and heat. Therefore, leeches have to be stored in cool temperature and away from direct light. Ricarimpex, a French international supplier of medicinal leeches recommends storage at +4°c to 20°c in a dark place.

Majority opined that feeding of medicinal leeches was not followed. Medicinal leeches are parasitic and feed on blood of animals. Leech usually feed once every 6 months. Therefore, feeding is generally not followed. Leech is a hermaphrodite and successful breeding was reported by few institutes during storage of medicinal leeches in the storage containers.

CONCLUSION

This survey provides information regarding current practices of storage and maintenance of leech in *Ayurveda* hospitals. This survey has showed that all the Ayurveda hospitals use leech therapy for treatment. Thus, leech therapy is a popular and widely used treatment modality in *Ayurveda* hospitals. There is a need for establishing breeding centers by *Ayurveda* fraternity in order to supply medicinal leeches throughout the year, across all *Ayurveda* hospitals in the country, there is also a need to adopt modern technologies for storage of leeches. In order promote *Jalouka* at global level; there is a need for establishing national standard guidelines for storage and maintenance of medicinal leeches in India.

Flow chart of the study showing the distribution of data regarding leech in Ayurveda hospitals



Questionnaire on Leech Storage

1. Leeches are procured from
   a) Natural habitat
   b) Breeding centers
   c) Supplier
   d) Other

2. Season of procurement of leeches
   a) Rainy season (JUNE-SEPT)
   b) Winter (OCT-JAN)

ISSN: 2456-3110 ORIGINAL ARTICLE April 2022

c) Summer (FEB - MAY)

d) Any season

3. Segregation of Leeches done during storage based on

a) Size

b) Colour

c) Collection site

d) Not followed

4. Identification of the leeches done based on

a) Ayurveda Description

b) Zoological classification

c) Not done

d) Other

5. Leeches are stored in

a) Mud pot

b) Plastic Jar

c) Aquarium

d) Other

6. Source of water used for leech storage

a) Tap water

b) Bore well water

c) Well water

d) Other

7. Frequency of water change

a) Daily

b) Once in 3 days

c) Once in 7 days

d) Other

8. Storage containers are changed once in

a) 7 days

b) 15 days

c) monthly

d) Other

9. Density of Leeches for one liter of water

a) Less than 5

b) 5-10

c) 10-20

d) More than 20

10. Storage Water is tested for Physico-chemical and Microbial parameters periodically

a) YES

b) NO

11. Special attention is given to provide Natural environment for leeches inside the leech storage container.

a) YES

b) NO

12. Stored leeches are kept in

a) A.C. and Temperature control rooms

b) Separate room assigned for leeches under room temperature

c) Stored in department or Minor OT

d) Other:

13. Is any feed given for Leeches?

a) YES

b) NO

14. Activity of the leeches are observed during storage

a) YES

b) NO

15. Approximate lifespan of stored leeches in your center

a) one month or less

b) 3-6 months

c) 1 year

d) more than 1 year

16. Successful breeding of leeches observed in your center

a) YES

b) NO

ISSN: 2456-3110 **ORIGINAL ARTICLE** April 2022

Fig 1. Leeches are procured from

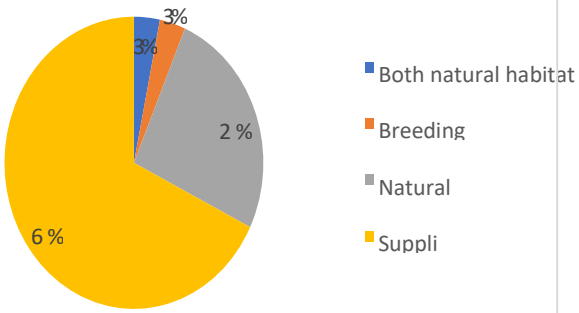


Fig 2. Season of pocurementof leeches

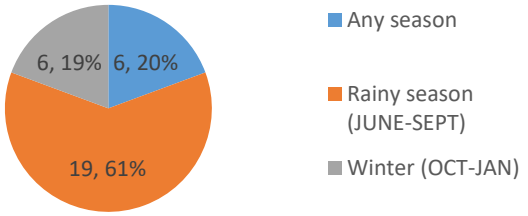


Fig 3. Leeches are stored in

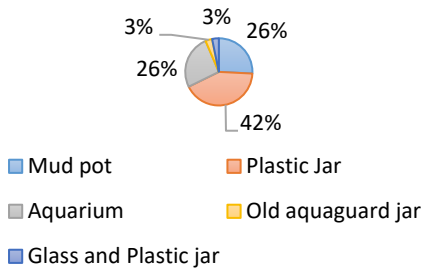


Fig 4. Source of water used for leech storage

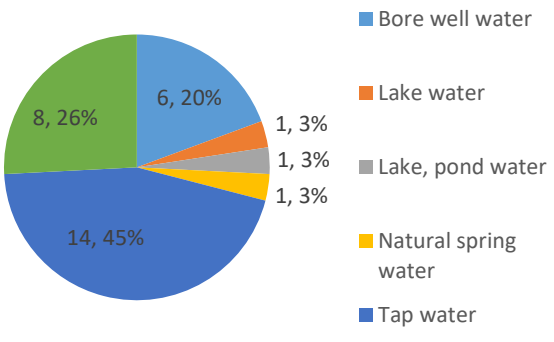


Fig 5. Frequency of water change

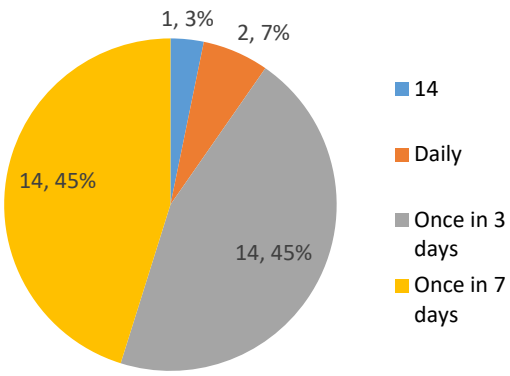


Fig 6. Storage Water is tested for physio chemical and Microbial parameters periodically

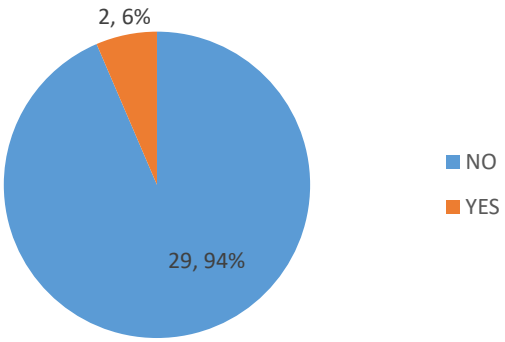
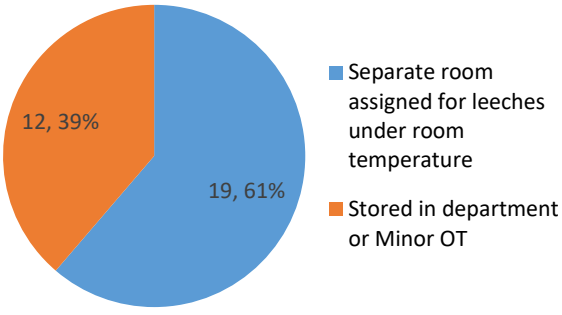


Fig 6. Stored Leeches Are Kept In



ISSN: 2456-3110 **ORIGINAL ARTICLE** April 2022

Table 1: Ricarimpex recommendations for leech storage

- Sterile jar (or clean) closed with a sterile gauze
- Water storage: either mineral water, mountain spring water or distilled water with Hirudo salt
- Change water at least once a week or in case of troubled water
- Temperature of storage between + 4 and + 20 °C in a dark place
- Conserve the batch number and do not mix leeches from different batch numbers

REFERENCES

1. Sushruta. Sushruta Samhita, commentary 'Nibandhasangraha' of Dalhanacharya and the Nyayachandrika Panjika of Sri Gayadasacharya on Nidanastana, edited by Vaidya Jadhavji Trikamji Acharya, published by Choukambha orientalia, Varanasi, reprint 2005, Pp-934,p-55-58
2. Agnivesha. Charaka Samhita, commentary 'Ayurveda dipika' of Chakrapanidatta, edited by Vaidya Jadhavji Trikamji Acharya, published by Choukambha Surabharathi prakashan, Varanasi, reprint 2005, Pp-838,p-132
3. Adams SL. The emergency management of a medicinal leech bites. *Ann Emerg Med.* 1989;18:316–9
4. Sartor C, Limouzin-Perotti F, Legré R, Casanova D, Bongrand M-C, Sambuc R, et al. Nosocomial infections with Aeromonas Hydrophila from leeches. Clin Infect Dis Off Publ Infect Dis Soc Am. 2002;35(1):E1–5.
5. Guideline of the University of Toledo Medical Center (USA). Available at https://www.utoledo.edu/policies/utmc/nursing/guidelines/general/pdfs/leech-therapy-guidelines.pdf. Accessed 24 october 2021
6. FDA. Product classification. Available at: https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfPCD/classification.cfm?ID=NRN. Accessed 24 october 2021

How to cite this article: Sudeepa, Gururaj D, Sneha A. A Survey Study on Leech Storage Practices in Ayurveda Hospitals. J Ayurveda Integr Med Sci 2022;3:17-22. http://dx.doi.org/10.21760/jaims.7.3.3

Source of Support: Nil, **Conflict of Interest:** None declared.

****