Preclinical Evaluation of Antidotal Property of *Mritisanjeevana agada* in Poisoning- A Study Protocol

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

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Study Protocol

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ABSTRACT

**Background:** As the poisoning is becoming a threat to rural India, it is necessary to increase the survival time to avail the primary treatment. For the treatment of poisoning, Agada is described in Ayurveda as an antidote. Agada is a polyherbal or herbomineral formulation constituted with combination antitoxic drugs along with some antioxidant, immunomodulator or hepatoprotective drugs. But they need to be revalidated for their efficacy and safety on the basis of contemporary assessment parameters.

**Aim:** Evaluation of antidotal property of *Mritisanjivana Agada* in poisoning.

**Objectives:**
1) To increase the survival time after the administration of *Mritisanjivana Agada* in snake venom and aluminium phosphide poisoning in albino mice.
2) To compare the efficacy of *Mritisanjivana Agada* and Anti-snake venom as an antidote.
3) To standardize the *Mritisanjivana Agada*.

**Methodology:** *Mritisanjeevana Agada* will be prepared and standardized. Cobra venom poisoning and aluminium phosphide poisoning have been selected as the representative for the animate poison and artificial/synthetic poison. After inducing poisoning in mice, one group will receive its...
standard antidote and other will receive standard antidote with *Mritasanjivana Agada*. The third group will receive only *Mritasanjivana Agada* without its standard antidote. All the groups will be assessed on the basis of hematology, biochemistry, Superoxide dismutase (SOD) level, Malondialdehyde (MDA) level and histopathology in case of death of the animals.

**Results:** *Mritasanjeevana agada* is expected to increase the survival time in the treatment of snake venom and aluminium phosphide poisoning in albino mice.

**Conclusion:** *Mritasanjeevana agada* may be as efficacious as Anti-snake venom as an antidote.

**Keywords:** Antidotal property; *Mritasanjeevana agada*; Cobra venom poisoning; aluminium phosphide poisoning.

### 1. INTRODUCTION

Poisoning is very common global public health problem. It possesses 45th rank in the total death in the whole world. Near about one million people die due to poisoning each year. Approximately 3,70,000 deaths per year are due to pesticide poisoning. According to WHO data in 2012, it is estimated that about 1,93,460 people died worldwide due to unintentional poisoning [1]. The incidence of poisoning in India is among the highest in the world. It is estimated that more than 50,000 people die every year due to poisoning in India [2]. Poisoning is the fourth most common cause of mortality especially in rural India where the mortality rate varies from 15- 30% [3-4].

According to the National Poisons Information Centre, New Delhi, analysis of poisoning calls showed that the highest incidence of poisoning was due to household agents (44.1%) followed by drugs (18.8%), agricultural pesticides (12.8%), industrial chemicals (8.9%), animals bites and stings (4.7%), plants (1.7%), unknown (2.9%) and miscellaneous groups (5.6%) [2]. Treatment protocols and effective antidotes are available even though the rate of mortality due to poisoning is high. The causes of death due to poisoning depends on various factors like dose of poison, late diagnosis in case of snake bite, delayed reporting of cases especially in rural areas etc. This may lead to worsened condition of the patient.

In Ayurveda, various antidotes are described for different types of poisoning for internal as well as local use in emergency condition. *Mritasanjeevana agada* [5] which is a herbo-mineral antidote, is indicated in all types of poisoning to save the person who is likely to die or apparently dead due to poisoning.

*Mritasanjeevana Chikitsa* [6]: These are the twenty four treatment modalities which help to cure patient afflicted with poison. It is one of the ancient classical therapy through which the life of individual can be regained. Nowadays this therapy has disappeared. This therapy was considered as universal antidote which can be used to nullify the toxic effect of all types of poison. In this treatment *Mritasanjeevana Agada* is used to revive the poisoned patient who is apparently dead. It is described that this *Agada* was produced by Lord Brahma before the emergence of *Amruta* (Nectar).

*Mritasanjeevana Agada* [5]: It is described that all the drugs should be collected in *pushya nakshatra*. All the drugs are taken in equal quantity and are triturated well to form paste. Then pills should be prepared from all the paste.

In the present study, *Mritasanjeevana Agada* will be prepared according to the classical reference and it will be standardized on the basis of physicochemical parameters as well as to estimate the heavy metal content with the help of inductively coupled plasma atomic emission spectroscopy (ICP-AES). Cobra venom poisoning and aluminium phosphide poisoning have been selected as the representative for the animate poison and artificial/ synthetic poison with the aim to evaluate the antidotal property of *Mritasanjeevana Agada* in these two poisoning conditions to increase the survival time after the administration of *Mritasanjeevana Agada* in snake venom and aluminium phosphide poisoning in albino mice. To find out whether *Mritasanjeevana Agada* is as efficacious as Anti-snake venom in snake venom and aluminium phosphide poisoning respectively, the study groups will be compared with *Mritasanjeevana Agada*.

### 2. MATERIALS AND METHODS

**Type of study**- Experimental Analytical and Animal Study
Table 1. Drugs used in *Mritisanjeevana Agada*

| SN | Drug Name                  | Latin Name                      | Part used | Pharmacological Activity [7]                                      |
|----|----------------------------|--------------------------------|-----------|------------------------------------------------------------------|
| 1  | Sprikka                    | Delphinium zallitAtich&Henssl  | Leaves   | Vishaghna, kushtha, raktavikara                                  |
| 2  | Plava                      | Cyperus rotundus Linn           | Tuberos   | Diaphoretic, diuretic                                           |
| 3  | Sthauneyaka                | Taxus baccata Linn              | Leaves   | Digitalis like action                                           |
| 4  | Kanksi (Saurashtra),       | Alum                            | Purified  | Tridoshghna                                                     |
| 5  | Shaileya                   | Parmeliaperlata Ach             | Leaves   | Mild diuretic, vishanashak,                                    |
| 6  | Rochana                    | bile of cow                     |           | Vishaghna, diuretic, nerve stimulant, chetanakaraka,            |
| 7  | Tagara                     | Valerianawallichii DC.          | Root      | Vishaghna, nerve stimulant, chetanakaraka, diaphoretic, CNS depressant, cardiac tonic |
| 8  | Dhyamaka(Khasha)           | Cymbopogon martini Roxb. Wats.  | stigmas   | Diaphoretic, diuretic, stimulant, chetanakaraka                |
| 9  | Kunkuma                    | Crocus sativus Linn.            | Bark      | Vishaghna, diuretic                                             |
| 10 | Mamsi                      | Nardostachysjatamansi DC        | Root      | diuretic, sandnyasthapaka, cardiac tonic                        |
| 11 | Surasa                     | Ocimum sanctum Linn.            | Florescence| cardiac tonic, diaphoretic                                      |
| 12 | Ala (Haratala)             | Orpiment, Yellow Arsenic, Arsenic trisulphide | Purified  | Vishaghna, kushtha, raktavikara                                 |
| 13 | Kushthaghna                | Acacia catechu Wild.            | Bark      | Skin disease, pandu, raktavikara                                |
| 14 | Brhati                     | Solanum indicum Lin n.          | Fruit     | cardiac tonic, shwasa, kasa                                    |
| 15 | Shirisha                   | Albizia lebeckBenth.            | Flower    | Vishaghna, kasa, shotha                                         |
| 16 | Sriveshtaka                | Pinus longifolia Roxb.          | resinous exudation obtained from the trunk | Stimulant, diuretic, diaphoretic, vishagha, Moorcha, kasa     |
| 17 | Padmcharati                | Clerodendrum indicum Linn. (Kuntze) | Root      | Vishaghna, kasa, shwasa, diuretic                              |
| 18 | Vishala(Indrayana)         | Tcitrullus colocynthisSchar     | Seed      | Vishaghna, kasa, shwasa, diuretic, Shotha, kaphanashaka        |
| 19 | Suradaru                   | Cedrus deodara Roxb. Loud.      | Bark      | diuretic, diaphoretic, shwasa, kasa                            |
| 20 | Padmakesara                | Nelumbiumspeciosum Wild.        | Keshara   | Vishaghna, shothagha                                            |
| 21 | Savaraka                   | SymplocosracemosoxRoBx.         | Bark      | Raktavikara, shothagha                                          |
| 22 | Manahshila                 | Realgar, Red Arsenic, Arsenic disulphide | Purified  | Vishaghna, kasa, shwasa, raktavikara                           |
| 23 | Kaunti (Renuka)            | Piper aurantiacum Wall.         | Seed      | Vishaghna, shothagha, diuretic                                  |
| 24 | Jati                       | Jasminum grandiflorum Linn.     | Leaves    | Skin diseases, Vranaropana                                      |
| 25 | Arkapushpa Rasa            | Calotropis proceraAit.          | Flower juice| Vishaghna, Raktapittagha, Kushtha, Krumi,                       |
| SN | Drug Name    | Latin Name                                      | Part used | Pharmacological Activity [7]                                      |
|----|--------------|-------------------------------------------------|-----------|-------------------------------------------------------------------|
| 26 | Haridra      | Curcuma longa Linn.                             | Tuberose  | Vishaghna, Vranaropana, Raktashodhaka, Shothahara                |
| 27 | Daruharidra  | Berberis aristata DC.                           | Root      | Snakebite, Bactericidal                                           |
| 28 | Hingu        | Ferula narthex Boiss.                           |           | Snakebite, scorpion bite, nerve tonic                             |
| 29 | Pippali      | Piper longum Linn.                              | Fruit     | Rasayana                                                          |
| 30 | Laksha       | Luccifer lacca Kerr.                            | Latex     | Raktapittaghna, Tonic                                            |
| 31 | Jala (Hribera)| Pavonia odorata Wild.                           | Root      | Stimulant, Tonic, Raktapittaghna                                  |
| 32 | Mudgaparni   | Phaseolus trilobus Alit.                        | Leaves    | Tridoshanashaka, shothaghna, balya, mooshakavishahara            |
| 33 | Chandana     | Santalum album                                  | Bark      | Vishaghna, Cardiac tonic, shwasa, diuretic                       |
| 34 | Madhuka      | Glycyrrhiza glabra Linn.                        | Root      | Vishaghna, tonic, rasayana, diuretic                            |
| 35 | Madana       | Randiadum entorum Lam.                          | Fruit pulp| Emetic, snake bite                                                |
| 36 | Sindhuvara   | Vitex negundo Linn.                             | Leaves    | Vishaghna, shothaghna, Rasayana, diuretic                       |
| 37 | Shampaka     | Cassia fistula Linn.                            | Fruit pulp| Virechaka (Mild purgative)                                       |
| 38 | Lodhra       | Symlocos racemosa                               | Bark      | Raktavikara, shothaghna                                         |
| 39 | Mayuraka (apamarga)| Achyranthes aspera Linn. | Root | Snake bite, scorpion bite, rat bite, dog bite |
| 40 | Gandha-phala (priyangu)| Aglaianrox burghiana Miq. | Fruit | Vishaghna, shothaghna, Rasayana, diuretic |
| 41 | Nakuli (Rasna)| Pluchea lanceolata Oliver &Hiern.               | Root      | Vishaghna, Snake bite, spider bite, scorpion bite, rat bite, dog bite |
| 42 | Vidanga      | Embeliaribes burm.f.                            | Fruit     | Snake bite, scorpion bite, diuretic, Rasayana                    |
The study includes two phases:

I. Standardization of *Mritasanjeevan Agada*:
II. Experimental Animal study

### Table 2. Material required for preparation of *Mritasanjeevan Agada*

| SN | Drug Name         | Latin Name                        | Part used            | Quantity |
|----|-------------------|-----------------------------------|----------------------|----------|
| 1  | Sprikka           | *Delphinium zalilAtich* & *Henssl*| Leaves               | 100gm    |
| 2  | Plava             | *Cyperus rotundus Linn*           | Tuberose             | 100gm    |
| 3  | Sthauneyaka       | *Taxus baccata Linn*              | Leaves               | 100gm    |
| 4  | Kanksi (Saurashtrika) | *Alum*                        | Purified             | 100gm    |
| 5  | Shailey           | *Parmeliaperlata Ach*             | Leaves               | 100gm    |
| 6  | Rochana           | bile of cow                       |                      | 100gm    |
| 7  | Tagara            | *Valerianawallichii DC.*         | Root                 | 100gm    |
| 8  | Dhyamaka          | *Cymbopogon martini Roxb. Wats.* |                      | 100gm    |
| 9  | Kanksi            | *Crocus sativus Linn.*           | stigma               | 100gm    |
| 10 | Surasa            | *Ocimum sanctum Linn.*           | Leaves, seeds        | 100gm    |
| 11 | Ela               | *Elettaria cardamomum Maton.*    | Fruit, seed          | 100gm    |
| 12 | Ala (Haratala)    | Orpiment, Yellow Arsenic, Arsenic trisulphide | Purified | 100gm    |
| 13 | Kushthaghna       | *Acacia catechu Wild.*           | Bark                 | 100gm    |
| 14 | Brhati            | *Solanum indicum Linn.*          | Root                 | 100gm    |
| 15 | Shirisha          | *Albizzia lebbeckBenth.*         | Flower               | 100gm    |
| 16 | Sriveshtaka       | *Pinus longifolia Roxb.*         | resinous exudation   | 100gm    |
| 17 | Padmchararati     | *Clerodendrum indicum Linn.* (Kuntze) | Root | 100gm    |
| 18 | Vishala           | *TcitrulluscolocynthisScharm*    | Root                 | 100gm    |
| 19 | Suradaru          | *Cedrus deodaraRoxb. Loud.*     | Bark                 | 100gm    |
| 20 | Padmakesara       | *Nelumbiumspeciosum Wild.*       | Keshara              | 100gm    |
| 21 | Savaraka          | *SmplocosracemosaRoxb.*          | Bark                 | 100gm    |
| 22 | Manahshila        | Realgar, Red Arsenic, Arsenic disulphide | Purified | 100gm    |
| 23 | Kaunti (Renuka)   | Piper aurantiacum Wall.          | Seed                 | 100gm    |
| 24 | Jati              | *Jasminum grandiflorum Linn.*    | Leaves               | 100gm    |
| 25 | Arkapushpa Rasa   | *Calotropis proceraA.it.*        | Flower juice         | 100gm    |
| 26 | Haridra           | *Curcuma longa Linn.*            | Tuberose             | 100gm    |
| 27 | Daruharidra       | *Berberis aristata DC.*          | Root                 | 100gm    |
| 28 | Hingu             | *Ferula narthex Boiss.*          |                     | 100gm    |
| 29 | Pippali           | *Piper longum Linn.*             | Fruit                | 100gm    |
| 30 | Laksha            | *Lucciferlacca Kerr.*            | Latex                | 100gm    |
| 31 | Jala (Hribera)    | *Pavonia odorata Wild.*          | Root                 | 100gm    |
| 32 | Mudpaparni        | *Phaseolus trilobusA.it.*        | Leaves               | 100gm    |
| 33 | Chandana          | *Santalum album*                 | Bark                 | 100gm    |
| 34 | Madhuka           | *Glycyrhiza glabra Linn.*        | Root                 | 100gm    |
| 35 | Madana            | *Randiadumentorum Lam.*          | Fruit pulp           | 100gm    |
| 36 | Sinthuvara        | *Vitex negundo Linn.*            | Root                 | 100gm    |
| 37 | Shampaka          | *Cassia fistula Linn.*           | Fruit pulp           | 100gm    |
| 38 | Lodhra            | *Symplocosracemosa*              | Bark                 | 100gm    |
| 39 | Mayuraka (apamarga) | *Achyranthes aspera Linn.* | Root | 100gm    |
| 40 | Gandha-phala (priyangu) | *AglaianroxburghianaMiq.* | Fruit | 100gm    |
| 41 | Nakuli (Rasna)    | *Pluchea lanceolata Oliver &Hiern.* | Root | 100gm    |
| 42 | Vidanga           | *EmbeliaripesBurn.f.*           | Fruit                | 100gm    |
2.1 Methodology

Collection, Identification and Authentication of drugs: All the drugs will be collected from authentic sources.

Preparation of Mritasanjeevan Agada: Physical impurities will be removed from all the drugs. Powder of all drugs will be prepared separately. Then powder of all drugs will be taken in equal quantity in a kharala and will triturated well. Tablets will be prepared from it.

2.1.1 Analysis

Physicochemical Analysis:

i) Loss on drying
ii) Total Ash value
iii) Water soluble Ash Value
iv) Acid insoluble ash value
v) Alcohol extractive value
vi) Water extractive value
vii) Sieve analysis
viii) pH
ix) Microbial count

Physicochemical study will be conducted in Analytical Laboratory, M.G.A.C. H. & R.C. Salod (Hirapur), Wardha.

ICP –AES (Qualitative and quantitative): Inductively coupled plasma atomic emission spectroscopy (ICP-AES) for qualitative and quantitative analysis of Arsenic at IIT, Powai, Mumbai.

II. Experimental Animal Study:

2.1.2 Materials

1) Swiss Albino mice 80
2) Indian Cobra Venom
3) Aluminiun Phosphide tablets
4) Lyophilised Inj Polyvalent Antisnake Venom (PVASV)
5) Distilled water 5 litres.
6) Instruments required for experimental study

2.1.3 Methodology

Drug collection

- Aluminium phosphide Tablets will be purchased from market.
- Distilled water will be purchased from GMP certified company.

1. Animal Study/Experimental Evaluation:

2.1.4 Experimental study design

Place of Study: APT Research Foundation, Pune

Sample: Healthy Adult Swiss Albino Mice weighing 28-30gms.

Animal Species: Swiss Albino Mice

Control group: 03

Experimental group: 03

Total groups: 06

Sample Size (Number of animals): Ten animals in each group = 10 x 6=60.

Sex: 30 male and 30 female.

Inclusive Criteria: 1. Healthy albino mice of either sex will be considered.
2. Mice weighing 28-30gms

Exclusive Criteria: 1. Less than weighing 28-30gms
2. Pregnant and diseased mice.
3. Mice which are under trial of other experiments.

Test compound/ study drug: Mritasanjeevana Agada

Vehicle control: Distilled water orally

Administration of test drug (Mritasanjeevana Agada): Fine suspension of Mritasanjeevana Agada will be prepared in distilled water as per dose level and it will administered 30 minutes before the administration of snake venom or aluminium phosphide to animals of the experimental group on the first day of experiment. From the second day, fresh suspension of the test drug will be prepared every day and administered between 10:00 am to 10:30 am daily for minimum seven consecutive days or till the recovery to each mouse by a single oral gavage. The animals will be dosed using a stainless steel intubation needle fitted onto a suitably graduated syringe.
The dosage volume administered to individual mice will be adjusted according to its most recent recorded body weight.

**Route of administration of Drug:**
- Snake venom will be administered intramuscular (IM)
- Inj Polyvalent Antisnake Venom (PVASV) will be administered intravenous (IV).
- Aluminium Phosphide will be administered orally.
- Study drug will be administered orally.

**Duration of study drug administration:** Minimum 7 Days and till the recovery of animals.

**Comparison:** All Groups are compared.

**Dose calculations:** Dose of the drug will be calculated by extrapolating the human therapeutic dose to mice on the basis of body surface area ratio.

**Formula for conversion of dose**

Animal dose = Human dose x 0.018 (conversion factor)

1) **Cobra venom**

Fatal dose - 12mg of dried venom for human beings

Animal dose = 7.2mg/kg body weight of mice IM

2) **Aluminium phosphide**

Fatal dose – 3 gm for human beings

Animal dose = 1.8 mg/kg body weight of mice orally

3) **Inj Polyvalent Antisnake Venom**

Therapeutic dose for human beings-bolus dose of 200 ml ASV and repeated doses of 100 ml ASV every 6 hours

Animal dose = 120 ml/kg body weight of mice IV

**Mritasanjeevana Agada:** Therapeutic dose 125 mg BD = 250 mg orally daily dose for human being

Animal dose = 150mg/kg body weight of mice orally

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**2.2 Pre-Experimentation Phase**

**2.2.1 Acclimatization of animals**

- Period – 7 days (Recording of body weight and food intake twice in a week)

**Experimentation phase**

- Test compound exposure – multiple dose (once daily for minimum 7 Days and till the recovery of animals)
- Mortality 6/12/24 hours
- Body weight (Before and after experiment)
- Food consumption (once daily)
- Cage side activity
- Neurological examination
- Urine qualitative test
- **Hematology** - Hb, RBC, WBC, Prothrombin time, Platelet count, Differential count, MCV, MCH, MCHC
- **Biochemistry** - Blood glucose, total protein, serum urea, creatinine, sodium, potassium, Total Bilirubin, SGOT, SGPT, Alkaline phosphatase, Ck-Mb (Creatinine phosphokinase), Cholesterol, triglycerides, LDL, HDL, VLDL.
- **Superoxide dismutase (SOD) Level**
- **Malondialdehyde (MDA) Level**
- **Histopathology** – Liver, heart, brain, kidney, lungs, stomach, intestine, pancreas, spleen, testes / ovaries (Only if the animals die).

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**Table 3. Grouping of animals**

| Group   | Group Description                  | Intervention                                      |
|---------|-----------------------------------|--------------------------------------------------|
| Group I | Vehicle control group             | Distilled water orally                            |
| Group II| Control group 1                   | Cobra venom poisoning followed by Inj PVASV       |
| Group III| Control group 2                  | Aluminium Phosphide poisoning                     |
| Group IV| Treatment group 1                 | Cobra venom poisoning Followed by Inj. PVASV & study drug orally |
| Group V | Treatment group 2                 | Cobra venom poisoning followed by study drug orally |
| Group VI| Treatment group 3                 | Aluminium Phosphide poisoning followed by study drug orally |
2.2.2 Housing and feeding conditions

As per the OECD Guidelines following conditions should be maintained,

- The temperature in the experimental animal room should be 22ºC (±3ºC).
- Humidity should be at least 30% and preferably not exceed 70%, other than during room cleaning; the aim should be 50 -60%.
- Lighting should be conventional laboratory diet may be used with an unlimited supply of drinking water.
- Animals may be housed individually or be caged in small groups of the same sex.

3. OBSERVATIONS

The following parameters will be observed during the course of the study.

- Body weight: Before the start of drug administration and at the end of the study.
- Food Intake: Before the start of drug administration, then once daily and at the end of the study.
- Survival time in all groups
- Survival rate in all groups
- Hematological examination -Before the start of drug administration and at the end of the study.
- Renal and hepatic function tests -Before the start of drug administration and at the end of the study.
- Superoxide dismutase (SOD) Level
- Malondialdehyde (MDA) Level
- Animals found dead during the examination will be autopsied as soon as possible. A macroscopic examination will be done of organs and tissues.
- Organ measurement and Histopathological examination will be performed to identify the cause of death and the nature (severity or degree) of the toxic changes present.

4. ASSESSMENT PARAMETERS

1. Survival time in all groups
2. Survival rate in all groups
3. Hematological examination
4. Biochemical Examination
5. Superoxide dismutase (SOD) Level
6. Malondialdehyde (MDA) Level
7. Histopathological examination in case of death of animal during experiment

4.1 Statistical Analysis

The results will be presented as Mean± Standard Error (SE) of means in each group. Statistical comparisons will be performed by both paired, unpaired student’s t test followed and One Way ANOVA test to determine the significant difference between the groups at P<0.05 (level of significance).

5. RESULTS

- Mritasanjeevana Agada is expected to increase the survival time in the treatment of snake venom and organophosphorus poisoning in Swiss albino mice.
- It is expected to be as efficacious as Anti-snake venom as an antidote.
- If so, it can also be used in the cases where no antidote is available.
- The drug will be standardized for future reference and use.
- There will be exploration of the fundamental concept of Agada in Ayurveda.
- There will be standardization and validation of safety and efficacy of at least one Agada along with scientific exploration & operational research of herbo-mineral preparations (Mritasanjeevana Agada).
- Integrated approach of treatment involving Ayurveda and contemporary science which will establish the role of antidote in Ayurveda as alone or add on treatment in prevention & control of non-communicable but life threatening condition like poisoning.

IPR values: Probable mechanism of action of Mritasanjeevana Agada may be established and undertaken for copyright.

Translational Value: Further clinical study can be conducted to observe the efficacy of Mritasanjeevana Agada in human being.

Utilization of outcomes of project: If Mritasanjeevana Agada proves efficacious in animals, then clinical study can be conducted to observe its efficacy in human being. If it proves efficacious and safe in human being, thereafter it can be recommended to use in emergency medicine alone or as add on treatment to increase the survival rate of patients in all the cases of poisoning.
6. DISCUSSION

*Mritasanjeevana Agada* cures all types of poison, makes a person victorious. It revives a person who is apparently dead because of poisoning. It also cures fever. If it is inhaled, applied externally as an ointment, carried in the body as an amulet, smoked or kept in the house, it annihilates the afflictions by evil dreams, poisons, germs, sin, mantra, thunder-bolt and enemies. It counteracts the evil effects of bad dreams and stri-dosha (poisons secretly given by women). It prevents untimely death, fear of water and fear of thieves. It endows a person with wealth, food-grains and success in undertakings. It promotes auspiciousness, nourishment and longevity. *Mritasanjeevana Agada* is an excellent recipe helps in the revival of a dead person. This *agada* is indicated in 8th vega (Impulse) of Visha (poison) [8]. Acharya Sushruta has also mentioned similar *Agada* with the name *Sanjeevana Agada* to regain the life of dead person [9].

*Agada* is an antidote mentioned in Ayurvedic toxicology. It not only counteracts the action of poison but it also possesses the therapeutic efficacy. In the literature survey, some reviews are found on *Agada* [10] but a very few preclinical studies are found in the context of Bilwadi Agada [11], Panchashirish Agada [12], Dashang Agada [13], Paravatadi Agada [14] and Maha Agada [15]. Hence it is very necessary to standardize the Agada and to evaluate their safety and efficacy so that they can be used in the management of poisoning cases [16-19].

In the present scenario, as the death rates are increasing due to poisoning, *Mritasanjeevana Agada* may increase the survival time and survival rate of the poisoned patients. As the scientific research is not conducted to evaluate the efficacy of this ancient antidote, an experimental study is designed in animals with the intention to standardize the drug and to evaluate the efficacy of *Mritasanjeevana Agada* so that the evidences can be generated to use it in the emergency management of poisoning as an adjuvant therapy to increase the survival period of the patient which is a golden time for the treatment.

7. CONCLUSION

*Mritasanjeevana agada* may be as efficacious as Anti-snake venom as an antidote.
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5. Pillay VV. In: MKR Krishna’s Hand Book of Forensic Medicine and Toxicology, 12th Ed., Paras Publications, Hyderabad. 2001; 276-299.

6. Tripathi B. (editor). Charaka Samhita of Agnivesha, Chikitsasthana 23/54-56, Choukhambha Surbhirti Prakashanaha, Varanasi; 2006.

7. Tripathi B (editor). Charaka Samhita of Agnivesha, Chikitsasthana 23/35-37, Choukhambha Surbhirti Prakashanaha, Varanasi; 2006.

8. Daniel V, Daniel K. Diabetic neuropathy: new perspectives on early diagnosis and treatments. Journal of Current Diabetes Reports. 2020;1(1):12–14. Available:https://doi.org/10.52845/JCDR/2020v1i1a3

9. Pandey G, Chunekar K (editor), Bhavamishra, Bhavprakash Nighantu, 2 ed., Purvardha Chokhamba Orientalia Varanasi; 1998.

10. Tripathi B. (editor). Charaka Samhita of Agnivesha, Chikitsasthana 23/58-60, Choukhambha Surbhirti Prakashanaha, Varanasi; 2006.

11. Shastri Ambikadatta (editor). Sushruta Samhita of Sushruta, Kalpasthan 5/73-74, Choukhambha Sanskrita Sansthana, Varanasi; 2010.

12. Chalakh S, Wadnerwar N, Deogade M, Kadu A. Critical review of Dooshivishari Agad with special reference to anti-allergic action. Journal of Indian System of Medicine. 2017;5(3):221.

13. Daniel V, Daniel K. Perception of Nurses’ Work in Psychiatric Clinic. Clinical Medicine Insights. 2020;1(1):27-33. Available:https://doi.org/10.52845/CMI/2020v1i1a5

14. Kanna S, Hiremath SK, Unger BS. Nephroprotective activity of Bilvâdi agada in gentamicin induced nephrotoxicity in male Wistar rats. Ancient Science of Life. 2015;34(3):126-129.

15. Manyala S, Chalakh S. Study of Panchashirishadi Agad on the basis of physicochemical and phytochemical analysis. Journal of Indian System of Medicine. 2020;8(2):114-121.

16. Bhavani VP, Honwad S, Ballal S. An experimental evaluation of Anti-inflammatory activity of Dashanga Agada w.s.r. keeta visha (insect bite). The Pharma Innovation Journal. 2018;7(8), 223-226.

17. Daniel V, Daniel K. Exercises training program: It’s Effect on Muscle strength and Activity of daily living among elderly people. Nursing and Midwifery. 2020;1(01):19-23. Available:https://doi.org/10.52845/NM/2020v1i1a5

18. Deshmukh S, Chalakh S, Rajput D. Experimental Study on Anti Scorpion Venom potential of Paravatadi Agada of Ayurveda in Indian Red Scorpion Venom (Mesobuthus tamulus). International Journal of Ayurvedic Medicine. 2020;11(3):456-465.

19. Sonare K. Chalakh S. Phytochemical evaluation of Maha Agada. Ayurpub.Com 2019;4(4):1279-1285.

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