

AYURVEDA AND MODERN CONCEPT OF TOXICOLOGY W.S.R. TO GENERAL  
CONSIDERATION OF AGADATANTRADr. Maya Asit Thakare\*<sup>1</sup>, Dr. Sunita Sunil Niwane<sup>2</sup> and Dr. Sangeeta Keshaorao Vidhale<sup>3</sup><sup>1</sup>HOD & Reader, Agadatantr Department, MUP'S Ayurved College, Hospital & Research Centre, Degaon, Tal-Risod, Dist-Washim, Maharashtra, India.<sup>2</sup>Professor, Sharir Rachana Dept., R.T.A. College, Dist. Akola, Maharashtra, India.<sup>3</sup>Professor, Kaumarbhrutya Department, Smt. Vimladevi Ayurvedic College Hospital & Research Center, Chandrapur, Maharashtra, India.**\*Corresponding Author: Dr. Maya Asit Thakare**

HOD &amp; Reader, Agadatantr Department, MUP'S Ayurved College, Hospital &amp; Research Centre, Degaon, Tal-Risod, Dist-Washim, Maharashtra, India.

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**ABSTRACT**

Ayurveda the foundation of Indian medical system consisted of eight branches and Agadatantra is one of them which mainly deal with poisons and their therapeutic management. Ayurveda Samhitas like; Sushruta and Charaka contain descriptions about the classical concepts of toxicology. Charaka samhita explained Visha Upakrama for the treatment of poisoning conditions. The modern science mentioned poisoning conditions and their treatment under the heading of toxicology. The modern ways of the treatment of poisons involves various approaches including removal of unabsorbed poison, resuscitation, antidotes, uses of adsorbent to eliminate poisons and delaying effects of poisons. The inanimate poison described as Sthaavara while animate poison described as Jangama. Inanimate poisons belongs from plant origin, toxic minerals and metals while animate poisons belongs from animals like; snakes, worms, insects and scorpions, etc.

**KEYWORDS:** Ayurveda, Poisons, Agadatantra, Antidote, Visha.**INTRODUCTION**

Ayurveda provides several ways for preserving and promoting health physically as well as mentally. In this connection Ayurveda described different branches which deal in specific area and *Agadatantra* is one such branch of Ayurveda that works around poisons and management of pathological conditions associated with poisons. The Ayurveda toxicology (*Agadatantra*) helps to identify poison, described types of poison and distinguish minerals, plant and animal poisons along with their treatment modalities.<sup>[1-4]</sup> The therapeutic approaches of *Agadatantra* helps to cure poisons originated from following sources

- **Animal poisons:** Birds, insects, reptiles and worms, etc.
- **Poisonous plant:** Belladonna and aconite, etc.
- **Poisonous Mineral:** Leads, arsenic and mercury, etc.
- **Artificial poisons:** Synthetic poison and cyanide, etc.
- **Environmental poisons:** Pollutants, gases and trace elements, etc.
- **Dietary sources:** Incompatible food articles/*Viruddha Ahara*

As mentioned above poison may be from different sources; however quantity of such compound play important role towards their poisoning effects i.e.; metals in minute quantity not induces toxic effects until accumulated to the fatal level. The poisons not only causes toxic effects but certain poisons are used as medicines after proper processing and depending upon medical emergency. Poisonous minerals like lead and mercury are examples of them which used in *Rasa* medicines after process of purification and size reduction.<sup>[4-7]</sup>

**General therapeutic principles of Agadatantra**

- Removal of poison through feces, urine, sweat and breath.
- Delaying effects of poisons
- Reverses the effects of poisons
- Prevent fast circulation of poison in body
- Administration of medicines of opposite qualities
- Adsorption of poison followed by removal using natural adsorbent so to prevent movement of poison in body.

The *Akritrima* (natural) poisons belong from natural sources including inanimate or static sources (*Sthaavara*) and animate or mobile sources (*Jangama*). *Akritrima*

poisons are common and imparts fatal effects while *Kritrima* (artificial) poisons are not so fatal and induces toxic effects after their prolong accumulation in the body, these includes; synthetic poison, industrial pollutants and gases, etc. Ayurveda described another category of poison as *Gara*; substances become poisonous after mere combination or poisoning effects arises due to the incompatibility of mixed ingredients.<sup>[6-8]</sup>

#### Substrata base of poisons

- Substrata of natural inanimate poisons are parts of plants which consisted of poisonous ingredients, these substrata of inanimate poisons are; root, fruits, resins, leaves, flower, bark, latex, heartwood, toxic minerals and tuber.
- The substrata base of animate poisons are; teeth, sight, breath, fangs, nails, feces, urine, semen, menstrual blood, saliva, pincers, anal region, bile, hair, beak bones and dead body.
- The substrata of artificial poisons (*Gara*) contain parts of insect, fecal matter, blood of animals, ashes of toxic herbs, toxic minerals and metals, etc.

#### Symptoms of poisoning conditions

- Sense of constriction and Unconscious
- Wringing pain of organs
- Yawning and breathing disorders
- Vomiting, anorexia and edema
- Dryness and roughness of mouth
- Headache and catarrhal inflammation
- Frothy discharge from the mouth, heaviness of tongue and incoherent speech
- Burning sensation, chest pain and coma
- Purulent lesions and diarrhea

#### Properties of Poisons

The poisonous substances exert their effects by virtue of their properties as depicted in **Figure 1**. The *Rooksha Guna* of toxins vitiates *Vaata*, *Pitta* and blood; sharpness of poison affects brain and induces symptoms of madness. *Soukshmya* property of poison allows its circulation through minute channels of body. The mobility (*Aashutva*) causes quick response and induces immediate pathology of toxins inside the body. The improper digestion (*Vyavaayee*) effect alter *Prakriti* of person and *Vikaashitva* property of poison causes muscle relaxant effect. The *Laghutva* quality of poison makes it unavailable for biotransformation and reaches quickly from one place to another. The *Avipaakitva* property of poison sustain its toxic effects since it not get metabolized easily due to its indigestibility. *Avipaakitva* property of poison also makes its elimination difficult and accumulation of poison in body occurs if medical attention delayed. These all the properties contributed towards the harmful and fatal effects of poisons and induce life threatening trouble to the patient.<sup>[8-10]</sup>



**Figure 1: Properties of poisons through which toxic substances causes fatal effects.**

#### Biological Effects of Visha

Poisons vitiates blood and *Doshas*; *Kapha*, *Pitta* and *Vaata* that after proceed to the heart and affects respiration, cardiac functions and vasomotor tone etc. Poison with *Vata* reaches to the forehead and eyes, spreads to the tissues and sometimes also affects six *Chakras*. Poison spreads from *Aadnyaa Chakra* to *Brahma Randhra* and when point in the head (*Karantaka*) get succumbs then death supervenes.

#### Treatment of Poisoning

- *Mantra chikitsa* is effective for *Jangama visha*, should be practiced properly by person of moral reputation. *Mantra* can block spread of poison and gives moral support.
- *Arishta/Venikabandhana* means tourniquet ligature can help to block spread of venom. This involves arresting of limb by tourniquet ligature above the site of bite using cloth.
- *Utkartana* means incision at the site of bite to remove unabsorbed poison from the site.
- *Nishpeedanam* means uses of compression force to squeeze out poison for affected area.
- *Agnikarma* means cauterization (control heating) using heated rods of gold and iron. This control heating can helps to destroy effect of poison and also reverse effects of poison at the affected are.
- *Parisheka* means sprinkling after *Raktamokshan* in which affected part irrigated by medicated water of *Chandana & Usheer*.

#### Modern View

Environmental pollutants like; air, water, gases, carbon monoxide, lead, industrial waste, combustion of fuel, smoke, sulphur dioxide and fly ash, etc. may accumulated in body and causes harmful effects. Pesticide, smoke, chemical poisons, acute drug toxicity, cyanide, synthetic poisonous and overdosing of alcohol, anesthesia & drug, etc. are examples of common artificial poisonous. The accumulated poisoning described as *Dushi visha* in Ayurveda which resembles cumulative toxicity. Modern science described uses of antidotes, adsorbent, emetics and other medicines, etc. for the treatment of poisoning conditions. Bloodletting

therapy, uses of purgatives and drugs which reverse effects of poisonous can also be used for the management of poisons.

Sanskrita Sansthana, Varanasi; Kalpastahana 5/39, Sarpadashtavishachikitsa adhyay, 2003; 49.

## CONCLUSION

Ayurveda described *Agadtantra* as branch of poison and management of pathological conditions associated with poisons. *Agadtantra* described types of poison belongs from natural and artificial origin. The different sources of poisonous are animals, plant, minerals, metals, environmental poison and *Viruddha Ahara*, etc. The general therapeutic principles of *Agadtantra* involves removal of poison through feces, urine, sweat and breath, delaying effects of poisons, reversal the effects of poisons, preventing circulation of poison and adsorption of poison to restrict their movement in body, etc. *Mantra chikitsa*, *Arishta/Venikabandhana*, *Utkartana*, *Nishpeedanam* and *Agnikarma*, etc. are approaches of Ayurveda which can help to treat poisoning conditions.

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