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Research Article

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### Diagnosis Of Dhatura Poisoning: A Comparative Study Of The Signs And Symptoms As Per Ayurvedic And Modern Classics

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#### ABSTRACT

The incidence of Dhatura poisoning is not uncommon. It can occur accidentally due to chewing of the seed with rice or other eatables. Previously accidental exposure to this poison was more when the plant was available abundantly. But now the availability of this plant is gradually reducing but the incidence of its use as hallucinogen is increasing. Dhatura or "Road Poison" is surreptitiously used with betel leaf, tea etc. to rob travellers as it stupefies the person. The victims are commonly rescued from the roadside in a semiconscious state. They can recall only some parts of the incident that had happened. Diagnosis of Dhatura poisoning, as per the Modern texts, can be done basing upon the 9Ds (9 signs and symptoms started with "D"). In Ayurvedic Classics i.e. in Charaka and Susruta Samhita, there is no discussion regarding the signs and symptoms of Dhatura poisoning. Astanga Sangraha/ Hridaya and some Nighantus (Pharmacopoea) discussed on the point which may be taken as criteria for diagnosis of Dhatura poisoning.

**Key words:** Dhatura poisoning, Road Poison, Susruta Samhita, Astanga Sangraha/ Hridaya, Nighantus.

#### INTRODUCTION

Dhatura is a common plant available abundantly all over the world. It has beautiful flowers of different colours. As per Ayurvedic Classics, Dhatura is a toxic drug that comes under Upavisha varga. Charaka delineated Dhatura in the context of Kushta chikitsa. Sushruta indicated it especially for Alarka visha. Depending upon morphological variation (specially the colour of the flowers) it is said to be of different types. According to Raja Nighantu there are 5 varieties of Datura viz. Sveta, Nila, Krsna, Rakta, Pita varieties. Usually there are two varieties of Dhatura- white flowered (*Dhatura metel* – sweta Dhatura) and black flowered (*Dhatura alba* – Krishna Dhatura) are

considered to be the commonest types of the plant and are from Solanaceae family. Rasa of Dhatura is tikta and katu. It has laghu ruksha guna and ushna veerya. Vipaka is katu and main karmas are kapha vathahara, vishaghna and kasahara. Major chemical constituents of Dhatura are scopalamine, dhaturadiol, dhaturalone, factusine,  $\beta$ -sitosterol, hyosine, hyoscyamine, fastudine, fastunine, fastusic acid, fastusidine, daturanolone, allantoin, norhyoscyamine, datumetine, datumethine, datumeline, daturilin, daturilinol, withametilin, noratropine, tropine, psudotropine, apoatropine, daturametalin A and B etc. Tropane alkaloids are known for the toxicity of Dhatura. The alkaloids first stimulate the higher

centres of brain, then the motor centres and finally cause depression and paralysis, especially of vital centres in the medulla. Contact with leaves or flowers cause dermatitis in sensitive persons. If the seeds are eaten, symptoms appear within half an hour, If a decoction of the seeds is given within a few minutes, and if alkaloids are used almost immediately. Fatal dose is one gram (100 to 125 seeds). Dhatura poisoning, otherwise known as “Road Poison” is a common experience of the medical practitioners and police personnel when a person is rescued by the police by the roadside in a semi-consciousness state with fragmented memory and taken to the medical practitioner for diagnosis and treatment. The condition is mostly homicidal. But sometimes the exposure may be of accidental character due to intake of Dhatura seed with rice etc. or using as Hallucinogen. In these conditions diagnosis is important. Utilizing the knowledge of modern Toxicology “The 9 Ds” (Parikh, 1990; Putul, 2014) the diagnosis of this condition can be done very easily.

## OBJECTIVES

To search for the signs and symptoms of Dhatura poisoning in the Ayurvedic classics,

- 1) To conduct a comparative study of the Ayurvedic concepts with the Modern ones.
- 2) To justify the utility of the Ayurvedic concepts for diagnosis of Dhatura poisoning.

## SYMPTOMS ACCORDING TO MODERN TOXICOLOGY

- [1]. The Modern classics of Toxicology and Forensic Medicine have mentioned the signs and symptoms of Dhatura poisoning with the help of 9Ds which include -
  - a) Dryness of mouth and throat, with burning sensation in the stomach.
  - b) Dysphasia, the first symptom the patient complains, followed by giddiness.
  - c) Drunken (stagerring) gait (ataxia) and in-coordination of the muscles.
  - d) Dry and hot skin. This is due to total suppression of sweat secretion, resulting in rise of body temperature. There is also peculiar flushed appearance of the skin, especially over the face.

- e) Dermatitis (exfoliative) with rashes.
  - f) Dilated pupils with resultant painful photophobia, with loss of accommodation reflex and near vision, with red and congested conjunctivae.
  - g) Distension of bladder (retention of urine).
  - h) Drowsiness. Full and bounding pulse initially which becomes weak, thready and irregular later on.
  - i) Delirium – patient becomes restless, markedly excited and delirious. This delirium has got a peculiar character manifested by muttering, indistinct and inaudible words (muttering delirium).
- [2]. Charaka Samhita has not discussed anything about the sign and symptoms of Dhatura poisoning.
  - [3]. Susruta Samhita mentioned a number of therapeutic uses of Dhatura, but mentioned nothing about its poisonous effects.
  - [4]. Astanga Sangraha gives a good description of Dhatura poisoning as-
    - i. Seeing of all things around yellow (Sarbang pashyati pitakam),
    - ii. Tremor (Kampa),
    - iii. Excessive Salivation (Lala),
    - iv. Delirium (Mada),
    - v. Vomiting (Chardi),
    - vi. Disturbed memory (Smritibhrangsa),
    - vii. Vertigo (Bhrama). (Uttarasthana 40/144)
  - [5]. Bhabaprakash Nighantu, synonymised Dhatura as Unmatta (as it produces signs and symptoms of insanity) which is characterized by disturbed intelligence (Dhibibhrama), instability of mind (Satwapariprava), unstable vision (Paryyakula Dristi), instability (Adhirata), irrelevant talk (Abaddhavaktwa), disturbance in wisdom (Sunyata of Hridaya). The other synonym given is Mahamohi (which produces Moha – hallucination) and Madana (which produces Mada – a state resembles with insanity). Bhabaprakash Nighantu also says that, Dhatura produces Delirium (Mada), increased colour (Varna - which may easily be compared with facial flush as mentioned in the Modern classics), Agni (increases the functions of Agni) (the functions of Agni (Pitta) as per the classics are- Varna (increase of colour – facial flush), Santapa (rise of temperature) and Vataja

vyadhies (some examples of Vataja vyadhis seen in this case are - Mukhasosha (dryness of mouth), Timira (timiradarshana – seeing of darkness in front of the eyes), Bhrama (vertigo), Atipralapa (Excessive, irrelevant talk). (Page: 317-320).

- [6]. Raja Nighantu mentions the synonyms of Dhatura as follows which indicate the signs and symptoms of Dhatura poisoning – Unmatta, Satha (that produces wickedness), Madana, Mohana (that produces Moha – hallucination). It is also said as Kanti-kari (excited/ that increases

Kanti – colour – which can be co-related with facial flush as mentioned in the Modern classics). Bhrama (vertigo) is mentioned as one of the important manifestations of Dhatura. Rajadhatura, a type of Dhatura, is synonymised as Bhranta (that produces Bhrama – hallucination) (Karabiradibarga page: 300-301).

## DISCUSSION

From the observations the following inferences can be drawn which are tabled below-

**Table – 1:** Table showing the observations of the study on the signs and symptoms of Dhatura poisoning as per Ayurvedic classics vis-à-vis the Modern classics

Serial No.	Sign as per Ayurvedic classics	Modern co-relation	Remark
01	Sarbang pashyati pitakam	Visual disturbance	Due to disturbance in accommodation reflex the person may see abnormal colour in front of the eyes.
02	Kampa	In-coordination of the muscles/ Tremor.	It is due to excitement & stimulation of the Nervous system/ Brain.
03	Lala (Lalarava)	Excessive salivation	Just after taking the seeds orally, due to bitter taste there may be excessive salivation.
04	Mada	Delirium	The patient will mutter and say indistinct and inaudible words due to abnormal functioning of brain.
05	Chardi	Vomiting	Due to bitter taste, after oral intake of the seeds there is irritation of stomach causing vomiting at the initial stage.
06	Smritibhrangsa	A complete inability to differentiate reality from fantasy	This sign is similar to the sign mentioned in Modern classics
07	Bhrama	Delirium & Vertigo	This sign is similar to the sign mentioned in the Modern classics.
08	Unmada	A group of signs and symptoms manifested as irrelevant talk, instability, fluctuation of think etc.	The Modern classics also mention a group of signs and symptoms characterized by same manifestations.
09	Kanti Varna	Increase of colour of the face especially which can be correlated with peculiar flushed appearance of the skin, especially over the face due to over excitement.	There is similarity of the concept of Ayurvedic and Modern texts.

After consideration of the Ayurvedic and Modern concepts on the signs and symptoms of Dhatura poisoning we can list the following manifestations as per Ayurvedic classics for the purpose of diagnosis of the condition:

- [1]. Pitadarsana (The person sees all substances around him to be of yellow colour),
- [2]. Kampa (Tremor),
- [3]. Lala (Lalasarava – Excessive salivation which may be seen just after crushing the seeds),
- [4]. Mada (Delirium),
- [5]. Chardi (Vomiting – May manifest just after crushing/ swallowing the seeds),
- [6]. Smritibhramsa (Disturbed memory/ memory loss – The person will not be able to answer the questions asked to him in order),
- [7]. Bhrama (Vertigo),

[8]. Unmadalakshanani (Dhibibhrama, Satwapariplava, Paryyakula Dristi, Adhirata, Abaddhabaktwa, Hridsunyata),

[9]. Moha,

[10]. Varna (Varnavridhi) /Kanti (Abnormal increase of colour, specially of the face),

[11]. Vataja vyadhies.

Out of the above eleven symptoms, Lalasarava and Chardi can be expected as the symptoms that can occur just after exposure to the poison and the others manifest after sometime. The signs and symptoms mentioned in the Ayurvedic classics have close similarity with the description of the Modern classics. The Ayurvedic descriptions are rather more elaborate, though mentioned in brief words. The signs and symptoms showed above which can be used as criteria for diagnosis of Dhatura poisoning can be summarized in the following table –

**Table – 2 Signs and symptoms**

Sl. No.	Signs & Symptoms	Astanga Samgraha	Bhavaprakash Nighantu	Raja Nighantu
1.	Pitadarshana	✓	x	x
2.	Kampa	✓	x	X
3.	Lalasarava	✓	x	x
4.	Mada	✓	✓	✓
5.	Chardi	✓	x	x
6.	Smritibhramsa	✓	x	x
7.	Bhrama	✓	x	✓
8.	Unmada	X	✓	✓
9.	Moha	X	✓	✓
10.	Barna (kanti)	X	✓	✓
11.	Santapa	X	✓	x
12.	Vatavyadhi	X	✓	x

From the above table it is observed that, “Mada” is admitted by Astanga Samgraha, Bhavaprakash Nighantu and Raja Nighantu as the common sign of Dhatura Poisoning. Mada is characterized by – 1. Manakshobha and 2. Sajnasanmoha. The characteristic features of these two conditions are irrelevant talk, in-comprehensible pronunciations, improper speech, abnormal behavior and dry and bright appearance (Charaka Samhita Sutrashtana 24/28-30). So the word “Mada” includes almost all the signs mentioned above. Therefore, only by seeing the manifestation of Mada a person can be considered to be under the effect of Dhatura Poisoning but differentiation from other conditions of similar manifestation should be considered.

## CONCLUSION

To summarize:

- [1]. Documentation of the signs and symptoms of Dhatura poisoning was not made during the period of Charaka and Susruta.
- [2]. Vagbhata (Astanga Samgraha/ Hridaya), in addition to study of the therapeutic uses, harmful effects of Dhatura are described.
- [3]. In the Nighantu period the condition “Dhatura poisoning” was studied and the poisonous affects were expressed by giving the synonyms having the meaning of the effects.

[4]. The descriptions of the Ayurvedic classics are more elaborate and explanatory to guide in diagnosis of Dhatura poisoning.

In conclusion it can be said that, Dhatura poisoning can be diagnosed by utilizing the knowledge of Ayurvedic classics.

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