



Review article

The concept of emergency management in *Agada Tantra*

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ABSTRACT

The aim of this study is to critically and extensively review the classical concepts of emergency management in *Agada Tantra*. The information on the emergency conditions in *visha pidita purusha* (patients of poisoning) was collected from the ancient Ayurvedic classics, viz. *Charaka Samhita*, *Sushruta Samhita*, *Astanga Samgraha* and *Astanga Hridaya*. The informations were compiled and the concepts were thoroughly studied to find out the similarities and dissimilarities among the concepts of emergency conditions due to exposure to the poison. It has been found that the concepts for application of the principles and procedures of management of emergency situations were hypothesized. The ancient Acharyas of Ayurveda were experienced and vigilant with the emergency situations that can arise from the exposure to the poisons. They elaborately described the signs and symptoms of the condition and gave guidelines for diagnosis. The procedures like *Anjana*, *Nasya*, *Dhuma*, *Siratajana*, etc. are mentioned as treatment of the situation by all the Acharyas. A good number of drugs for *Anjana*, *Nasya* and *Dhuma* are mentioned by the Acharyas which are potent and strong to cause stimulation of the nervous system. *Mritasanjivana* is a unique procedure advised by the Acharyas to apply at the terminal stage of the patient which is not described in detail. From the present study, it can be concluded that the ancient Ayurvedic Acharyas were aware of the serious and emergency situations that may arise due to poisoning. They knew the procedures of diagnosis of such situations and also developed a module for treatment. It can be assumed that these modules of treatment showed satisfactory results. Extensive study and research with multidisciplinary effort are prayed.

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INTRODUCTION

An emergency is a challenge for medical practitioners. It is a situation, in relation to the medical practice, when the life of the patient is in danger and any delay or fault in dealing with it can cause the end of the life of the patient. It also invites defamation of the attending physician. Hence an adequately trained, expert and dedicated emergency medical officer is considered to be the property of the society.

Modern medical science shows more concern with emergency medicine. The modern medical education and training include a chapter on the topic. Nowadays, a good number of devices are included in medical science to combat the emergency situations that are life-threatening to the patients. Ayurveda, the oldest system of life science, deals with the different health-related issues faced by human beings. Eight branches of Ayurveda are mentioned in the ancient classics

with an aim to produce specialized *vaidyas* in respective fields. But it is observed that no branch naming as emergency medicine (*Atyayik chikitsa*) is mentioned in the Ayurvedic classics.

Interestingly, in the branch *Agada Tantra*, a good number of emergency situations, their diagnosis, aetiopathogenesis and treatment procedures are mentioned in various books, viz. *Charaka Samhita*, *Susruta Samhita*, *Ashtanga Sangraha* and *Ashtanga Hridaya*. These concepts are very informative and interesting. A detailed scientific evaluation and clinical trials by multi-speciality experts may bring a new hope to human in the field of emergency medicine in near future.

The present study aimed to search *Charaka Samhita*, *Susruta Samhita*, *Ashtanga Samgraha* and *Ashtanga Hridaya* for collecting the information about the concepts of emergency, diagnosis of emergency conditions and the instructions provided for successful management of the emergency situations.

MATERIALS AND METHODS

The detailed study of *Charaka Samhita*, *Susruta Samhita*, *Ashtanga Samgraha* and *Ashtanga Hridaya* was done. The concepts of emergency situations with special reference to signs and symptoms and management procedures were also studied in detail. The findings, after study, were tried to justify scientifically for practical utilisation.

RESULTS

The results of the present study showed that at the time of description of the *Bishavega*, Acharya Charaka mentioned a total of 8 numbers in which 1st to 4th are with benign signs and symptoms. From the 5th *vega*, the person suffers from serious signs and symptoms like seeing of blue or multiple abnormal colours or total loss of vision (*niladinang tamasashcha darshanang*), hiccough (*hikka*), drooping of the head (*bhangah skandhasya*), etc. and ultimately dies. So, prompt and efficient treatment of a patient of poisoning at 5th, 6th and 7th stage is most important (Sastri, 1987 a).

Describing the management procedures (*chaturbingsati upakrama*) of poisoning, Acharya Charaka mentioned *sajnasangsthapana* (restoration of consciousness) and *mritasanjivana* (restoration of life after death – critical stage) which are self-explanatory and indicates the knowledge of emergency management (Sastri, 1987 b).

Saying a serious condition of a patient of poisoning, Charaka said that when *kafamarga* is vitiated with *bisha* then *srotasangrodha* occurs leading to *vayu avarodha*. It produces the serious type of breathing difficulty and the patient becomes like a dead. At this stage, the patient should be treated with *kakapada* (a procedure of treatment where scalp deep incision is given on the vertex and fresh meat is applied on it) followed by *pradhamana nasya* (application of powdered strong medicine through the nostrils) (Sastri, 1987 c). If there is loss or reduction of the functions of nose, eyes, ears, tongue and throat (*nasakshikarna-jihbakanthanirodheshu*), then the medicine should be applied through the nostrils (*nasyakarma*) prepared with consciousness restorative (*sajnasthapak*) and expectorant (*kafanissarak*) drugs (Sastri, 1987 d).

In a patient of loss of vision (*akshi uparodha*) due to *bishaprabhava tikshna anjana* (collyrium prepared with strong ingredients) is advised to apply (Sastri, 1987 e). When poison affects the brain (*sirogata bisha*), strong nasal applications (*nasya*) is indicated (Sastri, 1987 f). When *bisha*, entering through the lower part (*adhodashta*), spreads in the whole body then application of fresh meat over an incision made on the vertex is advised. In the case of entry of *bisha* through the upper part of the body, the same process should be done on the sole (Sastri, 1987 g). *Bishavega* is of 7 numbers, out of which the signs and symptoms can

be considered as benign to the 5th *vega*. But from the 6th *vega*, very serious type of signs/ symptoms develop like imbalance in the higher functions (*prajnapranasha*), severe type of loose motion (*bhrishang atisara*), drooping of the head and instability of thoracic and lumber joints, cessation of respiration (*sannirodha*), etc. which resulting in death (Shastri, 1987 a).

In the 6th *bishavega*, *abapidana nasya* (strong medicines through nasal route) and in the 7th *bishavega*, application of fresh meat on the vertex by giving incisions (*kakapada*) is advised (Shastri, 1987 b). Loss of some important neurological reflexes like loss of response towards spraying of cold water (*shitabhiradbhih na romaharsho*), looseness of the nose (*nasababhanga*), appearance of many complications (*atyarthamupadrutang*), abnormal loss of tone of voice (*hinaswara*), etc. are mentioned as the signs of rejectable patient of poisoning (Shastri, 1987 c).

A patient of poisoning suffering from swelling of the eyelids (*sunakshikuta*), excessive sleeping tendency (*nidrata*), abnormal colour and excessive dirtyness of the eyes (*bibarnabilochana*), abnormal multi-coloured vision (*bibarna darshana*) is advised to treat with *anjana* (collyrium) (Shastri, 1987 d). The patients of poisoning suffering from the manifestations like headache (*siroruk*), heaviness of head (*sirogaurava*), lathergy (*alasya*), stiffness of jaw (*hanustambha*), obstructed throat (*galagraha*), stiffness of the neck (*manyastambha*), etc. are advised to treat with *sirobirechana* (application of medicine through nostrils to expel out vitiated *dosha* from the brain) (Shastri, 1987 e).

Sirobirechana with *pradhamana nasya* (application of strong powdered medicine through nostrils to expel out vitiated *dosha* from the brain) is advised in the patients of poisoning with the signs and symptoms like unconsciousness (*nastasajna*), protrusion of eyeballs (*vivritaksha*), drooping of the head (*bhagnagriva*). In this situation incisions should be given on the blood vessels (*sira*) of the extremities and forehead (*sakhalalataja*). If bleeding will not occur from the incisions then an expert surgeon should apply incision on the vertex and fresh meat should be applied to it (*kakapada*). With the aim to bring consciousness making sound with musical instruments is also advised (*vadayet agadairliptwa dundubhih*) (Shastri, 1987 f). A person who becomes unconscious due to falling from tree, hill, etc. (*brikshaprapatavishamapatita*), drowning (*mritamamhashi*) and hanging (*udvaddhang*) is also advised to treat in the same line of treatment of unconsciousness due to poisoning (Shastri, 1987 g).

In the *panchama vega*, the patient suffers from the abnormal colour of the body (*bibarnata*), breaking pain of the bones (*parbaheda*), vitiation of all three *doshas* (*sarbadoshaprakopa*). In the 6th *vega*, there is unconsciousness (*sajnapranasha*) and excessive loose motion (*subhrishang atisaryyate*) and

in the 7th *vega*, drooping of the head and the whole body (*skandhaprithakathibhanga*) occurs which indicate death within a short time (Gupta, 2005 a).

A patient who is at the 7th *bishavega* should be treated with *avapida nasya* which should also be accompanied or followed by the application of fresh meat on incision given on the vertex (Gupta, 2005 b). Excessive froth discharge through mouth (*fenavamana*), unconsciousness (*nihsajna*), blackish discolouration of the hands, feet and mouth (*shyavapadakaranana*), loss of tone of the nose (*nasavasada*), looseness of the parts of the body (*angabhanga*), excessive passage of loose stool (*bingbheda*), looseness of the joints (*slathasandhita*) indicate death within a very short time (*jivitakshaya*) (Gupta, 2005 c).

In the conditions where there is no manifestation of the fatal signs and symptoms, the physician should treat the patient as promptly as the action taken to extinguish the fire in a burning house (*pradiptagaravat*). It should be kept in mind that in any type of poisoning, the patient's life is in acute danger (*kanthagata prana*). Especially in the patients of a poisonous bite, the poison remains at the bite site only for 100 *matra* (time taken for 100 blinkings) then spreads with great speed in the whole body (Gupta, 2005 d).

In the 5th *vega* of *bisha*, the patient suffers from wrong perceptions of vision (*darshanabhranti*), in the 6th *vega* from hiccup (*hikka*) and in the 7th *vega* drooping of the head (*skandhabhanga*) which is ended as death (*mrityu*) (Gupta, 2002 a). A patient of poisoning may develop 16 complications (*upadrava*) neglect to which leads to death (Gupta, 2002 b). If a patient of poisoning is not recovered by the use of the treatments like a *mantra*, etc. and goes to the state of *panchama vega* then antidote (*pratibisha*) should be used. But the physician should observe that the patient should not enter to the 7th *vega* before application of *pratibisha* as the 7th *vega* indicates the terminal stage from where recovery is almost impossible (Gupta, 2002 c).

A patient of a bite by a snake or another poisonous animal (*jangama bisha*) should be treated with inanimate poisons (*sthavara bisha*) (Gupta, 2002 d). A patient of poisoning with inanimate poison (*sthavara bisha*) should be treated with snake bite (*dangsayet pavanashibhih*) as poison is the only medicine to neutralise poison (*na bishapratimang-kinchinnirvishikaranang bishe*) (Gupta, 2002 e). In the case of poisonous spider bite (*lutadashta*), poison should be applied both orally and locally as in this case the poison acts like nectar (Gupta, 2002 f).

For treatment of poisoning, poison should be applied with milk, honey and ghee (*kshirakshaudraghrityuktang*). Poison applied with *Vitex trifolia*/*Vitex nigundu* (*sindubara*) and *Vreleriana hardwicitrii* (*tagara*) is like nectar for the poisoning patients (*mrityusanjeevana*) (Gupta, 2002 g). A poisonous snake should be made angry and it should be allowed to bite a piece of meat. This

meat should be dried up and made into powder. This powder should be used in the patient of poisoning on whom all other antidotes failed (Gupta, 2002 h).

DISCUSSION

The ancient Ayurvedic scholars observed and identified some conditions as an emergency in the patients of poisoning and also gave a vivid discussion on the management procedures of these situations. An impressive discussion on the diagnosis and treatment of emergency situations can be considered as the salient and important features of *vrihatrayee*. Observation of the description of *bishavega* reveals that the 5th, 6th and 7th *vegas* are considered as serious/ emergency situations. Defective vision, loss of vision, and drooping of the head are mentioned as the indicators. These conditions reflect the major pathological change in the vital areas of the body.

Sajnanasha and *mrityu* are the sequences of the effect of *bisha* which indicate worst prognosis. To deal with these two situations, two interesting treatment procedures are mentioned i.e. *sajnasangsthapana* and *mrityusanjivana*. Details of these two procedures are not directly described in the classics which need more study and research. From the names, it can be assumed that a toxicologist must be well trained and expert in emergency management. Application of medicine on incision applied on the vertex or sole in an interesting procedure for management of the serious state of a patient of poisoning. As described in the classics, this procedure is to be applied to the terminal state of the patient. An extensive study for evaluation of this procedure is to be done. Application of medicine through nasal route (*nasya*) has justification as at some stages, application of oral medication becomes almost impossible and there is also a need to stimulate the higher centre directly. With the same idea, the application of strong medicine around the eyes (*anjana*) is also advised. Identification of emergency situation in a patient of poisoning is advised to do by examining the status of the eyes, consciousness, respiration, speech, the capacity to maintain the stability of the body which is in the modern medicine also said to be indicators and advised to examine properly.

It is very interesting that Ayurvedic scholars have directed the toxicologists to be very prompt in treating a patient of poisoning. It can easily be realized that poisoning is always a serious condition. Any delay/negligence in the treatment of poisoning can be proved to be ended with the death of the patient within even some minutes. The Ayurvedic scholars have not advised using antidotes randomly. They said that unjustified use of antidote can cause harm to the patient. So, it should be used only when the physician becomes sure that the patient is under the effect of poison.

The concept of the use of poison to treat poisoning is appraisable and wonderful. The technique described for the collection of poison from poisonous snake and preparation of consumable meat powder also attracts the attention of the learned ones. Advice to use inanimate poisons against animate poisons and animate poison against inanimate poison is very interesting with the major scope of research. Biting by a snake in a serious stage of inanimate poisoning can be considered as a unique concept of Ayurvedic scholars.

On many Ayurvedic principles, it seems difficult to give modern justification. But it can be assumed that the facts are definitely based upon methodical and long term observation and study. Only thorough study and scientific evaluation can convince the modern people as there is no availability of documentation procedures followed by the ancient scholars and the documents collected by them.

CONCLUSION

The present study concludes that Ayurvedic scholars, even before thousands of years B.C., made themselves devoted on the study of the indicative signs and symptoms of fatal outcome of poisons on the patients and after study and research identified poisoning as a condition with the quick and dangerous outcome which need very prompt and efficient management. Hence, the toxicologists (*Bishavaidya*) is advised to prepare himself from all aspects like knowledge of diagnosis, prognostication, treatment, etc. to deal with such situations efficiently. When dealing with patients of poisoning, the physician may also need to use some poisons as the ultimate mean of treatment where great risk is there. Perfect knowledge, experience and confidence are the main strength at this situation.

Ayurvedic classics can be considered as the richest treasure of medical knowledge. The invaluable contributions of the ancient Ayurvedic classics should be lifted and evaluated scientifically with the multi-disciplinary effort for the benefit of human society.

CONFLICTS OF INTEREST

The author declares no conflicts of interest.

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