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Environmental toxicology; Ayurveda perspective W.S.R. to *Agada Tantra* a review

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Abstract:

In the changing realm of globalization there has been an increase in pollution which has direct or indirect effect on health of human beings. Here the manmade toxins re been assed to the environment by various sources. These toxins have harmful effect on our ecosystem. This can be correlate with Gara or Dushi Visha. In day to day practice the need of detoxification is ever increasing and here the Ayurveda view of Gara Visha and Dushi Visha in context to this environmental toxins is been discussed in present article. The pollution caused by such agents and their harmful health effects are also been studied.

Keywords: Gara Visha, Dushi Visha, environmental toxins

Introduction:

Recent advancement in each and every aspect of life had led to an ever-changing health scenario. The perception of advancement and development of more and more industries producing finer products had resulted in emission of undue – toxic wastes in our environment. The earth as a whole is our environment and it includes all physical, biological and social aspects. The industrial and agricultural revolution had produced hazardous changes in these aspects. This in turn had started to affect our mind as well as body health. Here in present context we will discuss the basics of environment, toxicology, its health effects and the Ayurveda counterpart of *Dushi Visha* and *Gara Visha*.

Environment –

The surrounding condition in which we as human being live is termed as environment. It includes the organic, inorganic and social aspect. These all have a huge influence on health of one's mind and body. Any deviation in this are considered to have negative impact on health. Today's industrial development and also the increasing use of pesticides in farming had led to increase the pollution affecting our environment. This toxins affect the quality of air we breathe, water we ingest and also the food we consume. The qualitative degradation of environment and its natural resources with different pollutants is called as environmental pollution.

Environmental Toxicology –

It is multidisciplinary field of science concerned with the harmful effects of various chemical, biological and physical agents on living organisms. The study of impact of pollutants on the structure and functioning of ecosystems. It primarily includes the manmade poisonous chemicals and their effect on environment is studied. The naturally occurring toxins are not included as those were present and living creatures had been adopted for their effects. It is the action of Xenobiotic on the cellular level. Here the Xenobiotic is the chemical toxin produced artificially which is foreign to the respective environment. The bioaccumulation, biotransformation and degradation of this xenobiotic plays a vital role in deteriorating health of humans. Right from changes at gene level till the development of various disorders like cancer are been formed by the direct influence of these toxins. The PCB's (Pollutants Polychlorinated Biphenyls) and Heavy metals are other such harmful byproducts of pesticides and other chemical factories which are responsible for serious health issues.

Ayurveda view-

In the context of present topic, the xenobiotic can be considered as *Dushi Visha* and or *Gara Visha* which has long term harmful effect on one's health. Attenuated or denatured poisons function as latent toxin in the body. *Acharya Susruta* and *Vagbhata* described *Dushi Visha* as any kind of poison originating from inanimate or animate sources or any artificial poison (*Kritrima Visha*) retained in the body after partial expulsion. As the use of harsh chemicals as pesticides are permitted for cultivation of food grains and vegetables, these harmful chemicals can be considered as *Dushi Visha* as these are mild, latent and has slow steady effect on our ecosystem. These are poison for the pests but at the same time they are slow acting and accumulative poisons for humans which results in cumulative toxicity. The *Gara Visha* is also said to be artificially prepared or is stated as *Kritrima Visha*. These two types of artificially formed poisons, *Gara Visha* and *Dushi Visha* are having low potency and are not lethal on acute basis. But these tend to have harmful effect on our ecosystem as like that of xenobiotic, PCB's and heavy metals. So are considered and correlated in the present context of environmental toxicology.

Symptoms of *Dushi* / *Gara Visha*-

Heaviness of body, Yawning, Body ache, diarrhea, changed complexion, foul breath, impaired gustatory and olfactory senses, insatiable thirst, slurred and broken speech, vomiting, intermittent fever, insanity, oligospermia, urticaria, fainting, ascites paleness and weakness, lack of appetite, tachycardia, edema of the limbs, Grahani, Rajayakshma, Gulma, Dhatukshaya etc.

Treatment protocol –

In view of Ayurveda, the treatment of *Gara Visha* and *Dushi Visha* comprises following modalities,

- *Shodhana Chikitsa*
- *Shamana Chikitsa*, use of antidote - *Agada*
- Use of *Rasa, Rasayana – Bhasma Chikitsa*

The *Shodhana* include *Vamana, Virechana* and *Raktamokshana* as prime modalities with due *Purvakarma, Pradhana Karma* and *Paschat Karma*. Then one should follow and make use of various *Agada* – specific antidotes mentioned in classics. Use of *Dushi Vishari Agada* comprising drugs such as *Pippali, Jatamansi, Lodra, Ela, Kushta, Yshti, Chandana, Gairika* etc. can be done. Also the *Morvadi Agada, Bilwadi Agada* and use of *Ghrita* can be done in such conditions. *Bhasma* of precious metals such as Gold – *Suvarna*, silver – *Rajata* and Diamond – *Hirak* can be used for alleviating the harmful effects of *Dushi Visha* and *Gara Visha*.

Inference –

Ayurveda in the stream of *Agada Tantra* had mentioned the concept of *Dushi Visha*. It stated the latent nature of the poison and how it accumulates in our body over the period of time. In similar way the environmental toxins present gets accumulated in our body causing various health hazards. So the concept can be correlated with *Dushi Visha* and the treatment can be implemented vice versa in environmental toxicity.

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