

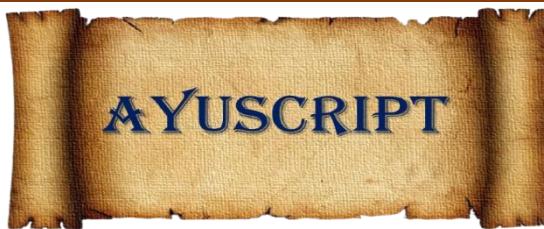
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Role of Xenobiotics W.S.R. to *Gara Visha* and it's Preventive Management – A Review

Shegaonkar M.¹, Tathe D.²

1. Assistant Professor, Department of Agadtantra Evum Vyavhara Ayurved, Indutai Gaikwad Patil Ayurved College, Research Centre & Hospital, Nagpur, Maharashtra, India
2. Assistant Professor, Department of Swasthavritta, Indutai Gaikwad Patil Ayurved College, Research Centre & Hospital, Nagpur, Maharashtra, India

ABSTRACT:

A chemical that appears in an organism but is not generated or expected to be present there naturally is called a xenobiotic. It might be a dangerous foreign substance that entered the body in minute amounts to prevent the person from dying right away. Tobacco and other drugs that leave behind residues that are not fully metabolized, as well as environmental contaminants like soil, air or water pollutants like industrial residues, food additives, food taste enhancers and food coloring like MSG, Hydrocarbon containing products and pesticide residue in food like raw fruits and vegetables are the example of xenobiotics. routes including ingestion, inhalation and skin surface absorption can allow xenobiotics to enter the body. In Ayurvedic classic, the term *Gara Visha* gives us a clear understanding of these tiny amounts of toxins. *Agadtantra* which is one of the branch of *Ashtang Ayurveda* has given more emphasis over *Garavisha* (Artificial Poison). *Gara Visha* formed by combination of two or more than two poisonous or non -poisonous drugs and ultimately affect the whole body by viating all *Dhatus* in the body. Now a days People unknowingly consume these xenobiotics substance. this paper highlight the role of xenobiotics with special reference to *Gara Visha* and its preventive management.

Key words:

Xenobiotic, *Gara Visha*, *Agadtantra*, *Ayurveda*.

CORRESPONDING AUTHOR:

Dr. Mrunali S. Shegaonkar

Assistant Professor, Department of Agadtantra Evum Vyavhara Ayurved, Indutai Gaikwad Patil Ayurved College, Research Centre & Hospital, Nagpur, Maharashtra, India.
Email: mrunalishegaonkar6@gmail.com, Mobile no. 919420058660

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Introduction:

Urbanization, population growth, industrialization and globalization are affecting our lives in both positive and negative ways, but they are definitely bringing about change^[1]. Technological progress, longer life, better access to medicine (for humans and animals) as well as daily use of personal care products and pesticides introduce new substance into the environment. The term “Xenobiotics” comes from the Greek *xenos* (foreign) and *bios* (life), meaning foreign things in living form. Xenobiotic are foreign chemicals or toxins that may accumulate in the body, usually due to pollutant and deactivated and /or secreted primary by the liver. It might be a dangerous foreign substance that entered the body in minute amounts to prevent the person from dying right away. the exposure to xenobiotics may occur via the air, water, diet, soil, plant, animals, pharmaceutical compounds, personal care products, illicit drugs, industrial products and nuclear waste^[2]. In Ayurvedic classics, we have clear idea about this traces quality of poison in the name of Gara Visha. Samhita like Charaka, Sushrut and Ashtang Hridaya clearly and thoroughly mentions about this concept. Gara Visha formed by combination of two or more than two poisonous or non-poisonous drugs and ultimately affect the whole body by viating all dhatus in the body. now a days people unknowingly consume these xenobiotic substance by ingestion, inhalation and skin surface absorption. Therefore there is need to explore the relation between xenobiotics and Gara Visha and its preventive management.

Aim & Objectives :

1. To study the relation between xenobiotics and Gara Visha and its preventive management.
2. To develop awareness regarding xenobiotics in present era.

Materials & Methods:

1. Literature has been reviewed from Ayurveda & contemporary science.

2. Different books and articles regarding to xenobiotics and Gara Visha studied.

Observations :

- Xenobiotics – technological progress in the 20th century has led to the development of many compounds used to improve daily life (antibiotics, pesticides, dyes, PCPs, additives etc) that do not necessarily occur naturally in the environment or whose naturally occurring concentration are significantly different from those caused by anthropogenic activity^[3]. Xenobiotics are defined as “chemical found but not produced in organism or the environment. some naturally occurring chemicals become xenobiotics when present in the environment at excessive concentration^[4]. Xenobiotics found in the air, soil, water, plants, animals and humans, and are classified as^[5]
- pesticides (Insecticides, bactericides, herbicides, fungicides)
- pharmaceutical compounds (multiple - class pharmaceuticals, essential medicines, antibiotics, endocrine disruptors, NSAIDs, Psychiatric drugs etc)
- Personal care products (Fire retardants, Fragrances, Sunscreen components, Antiseptics, Plasticizers)
- Illicit drugs (Hallucinogenic compound, Stimulating compound, Inhibitor compounds)
- Other industrial products (Organic wastes, Inorganic wastes, E-wastes, Heavy metals)
- Nuclear waste. Tobacco and other drugs that leave behind residues that are not fully metabolized, as well as environmental contaminants like soil, air or water pollutants like industrial residues, food additives, food taste enhancers and food coloring like MSG, Hydrocarbon containing products and pesticide residue in food like raw fruits and vegetables are the example of xenobiotics.

There are various anthropogenic activities for entering xenobiotics into environment, such as human consumption and excretion, waste water and sewage

treatment plants, livestock treatment and excretion, industries and production plants and agriculture practices. pesticides are applied directly to the soil and carried by rain into rivers, groundwater etc. PPCPs are consumed by humans and enter the environment indirectly as they cannot be completely metabolized but are only converted into various metabolites, some of which are more toxic than the parent molecule. After excretion, they end up in sewage /waste water treatment plants and eventually in rivers, lakes, oceans, soil, ground water etc. both pesticides and PPCPs are taken up by plants and aquatic organisms and enter the food chain.

Toxic effects of Xenobiotics –

Local and systemic effects: local effects may be described as injuries caused by chemicals in biological system at the site of first contact. the local effect may be produced by caustic substance on gastrointestinal tract upon oral ingestion, by corrosive substance on the skin or by irritant gases and vapours on the respiratory tract upon inhalation.

Immediate and Delayed effects: several other chemical produce effects after a lapse of some time. this type of effect is termed as delayed effects. chemicals induce carcinogenic effects after a latent period of 20 to 30 years in human beings. damage to skin DNA, skin cancer, nervous disturbances, memory loss, mood disturbances, sleep disorders, developmental problems, endocrine disruptions, thyroid function disorders, low sperm count in males, pcos etc are the delayed effects of xenobiotics compounds.

Reversible and irreversible effects: some chemicals produce adverse effects that disappear following withdrawal of exposure. this is known as reversible effect. certain other alterations produced by other toxicants in the biological system do not disappear even after considerable time following withdrawal of the exposure. this type of effect either persists or progresses even when exposure is withdrawn,

Gara Visha

Agadtantra is a special clinical branch of Ashtang Ayurveda which was in practiced since time immemorial. Agadtantra explains natural toxins (Sthavara Visha & Jangham Visha) as well as artificial toxins (Kritrimvisha) [6]. Kritrimvisha is called as Garavisha by Aacharya Vaghbhatta . Gara Visha is prepared artificially by the mixture of various poisonous and non poisonous substance^[7]. since it takes some time for this type of poison to get metabolized it doesn't cause instantaneous death of person. Most of the Gara Visha Adhishtanas mentioned in Ayurvedic classics can be correlated to resources that we are using daily. regular exposure to chemicals via food, air and water i.e xenobiotics can be consider as Gara Visha [8]. If these exposure of xenobiotics i.e Gara Visha is in its peak, the normal biological activities will get hampered and the problems like physiological, psychological may arise. disease like cancer, stroke, heart attack, mental disorders, autoimmune disease etc can also be attributed to the effect of these poison through our daily goods.

Cure through Agadtantra:

Agadtantra is a branch of Ayurveda dealing with diagnosis, treatment and prevention of poisoning. Gara Visha after getting inside the body cannot be fully metabolised and undergoes improper digestion and improper assimilation. As a result, it cannot be properly expelled out from the body and get accumulated as toxins. In case of Gara Visha poisoning, after assessing the patient immediately give Vaman (emetic) therapy by administration of fine powder of copper along with honey for cleansing the heart (hrudayashuddhi) [9]. Gold is supposed to be best medicine for Gara Visha^[10]. other drugs like Ajitha Agada, Mruta sanjeevana Agada, Vishahari leha, bilwadi Gutika, Dushivishari Agad etc can be used as a treatment of Gara Visha. The Agad formulations have the property of detoxification and rejuvenation. so that cleaning the toxins from the body and nourishing the tissues of the body. This is

the superiority of the Agada in general compared to normal Rasayan Dravyas.

Discussion:

In present era, people are more prone to various kind of poisons. these xenobiotics which is chemical found but not produced in organism or the environment, gaining entry in human body through diet, medication, environment, occupation or hobbies is nothing but the Gara Visha explained by our Acharyas. Gara Visha after getting inside the body cannot be fully metabolised and undergoes improper digestion and improper assimilation. As a result, it cannot be properly expelled out from the body and get accumulated as toxins. As inside the body liver performs the detoxification function ultimately these toxins affect the liver and shows various sign and symptoms resemble of Gara Visha.

Conclusion:

This review provides information on xenobiotics and Gara Visha. the correlation between xenobiotics and Gara Visha lies in their ability to cause harm to the body through prolonged exposure. Now a days xenobiotics plays a great role in the process of toxin accumulation in body and ultimately result into disease formation. if a foreign chemical is acting over the normal pathway of the body's physiological process, it can mimic or counter act the normal functional mechanism. if the wrong metabolite is formed after the metabolism it can impact adversely. by using the concept of Gara Visha we can manage the toxic effect of xenobiotics. with the help of Agad formulations detoxification and rejuvenation of body is done.

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