



Review Article

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A REVIEW ON UNDERSTANDING DAILY CARCINOGEN EXPOSURE THROUGH AGAD TANTRA: INSIGHTS INTO GARAJANYA DUSHI VISHA, AND THEIR PREVENTION AND MANAGEMENT

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ABSTRACT

Agad Tantra, a specialized branch of Ayurveda focused on toxicology, offers an ancient yet insightful perspective on the health impacts of toxins. Central concepts like Visha (poison), Garavisha (artificial/cumulative toxins), and Dushivisha (residual/attenuated toxins) can be analogously applied to modern carcinogenic exposures arising from environment and lifestyle. An integrative literature review was conducted, analysing contemporary peer-reviewed studies on carcinogens alongside classical Ayurvedic texts to establish correlations between modern toxicants and Ayurvedic toxin classifications. Daily exposures to carcinogens—such as acrylamide and nitrites in processed foods—exhibit cumulative effects akin to Garavisha and Dushivisha. Environmental agents like UV radiation, air pollutants, and formaldehyde produce chronic cellular damage, aligning with Dushivisha. Substances with endocrine-disrupting and carcinogenic properties, including Bisphenol A, tobacco smoke, and PCBs, also reflect features of both Garavisha and Dushivisha. Lifestyle-related toxins, such as alcohol, manifest similar to chronic toxicity. Agad Tantra approaches such as the use of Shodhana (detoxification) Agada Yogas (anti-toxic medicines), Prashamanam (pacification) and Rasayana therapies (Immune restoration) are employed to counteract the harmful effects of these carcinogens. The Ayurvedic framework of Agad Tantra offers a unique interpretative model for understanding carcinogenesis through chronic toxin exposure. Aushadhi (Murvadi Agada and Sanjeevani Agada), Prashamana (Patolakaturhinyadi kashayam and Avipathi churanam), and Rasayana (Kalyanaka ghrita, Ajeya ghrita and Dushivishari Agada) are examples of preventive and therapeutic techniques. Integrating Agad Tantra principles with modern carcinogen science provides a comprehensive model for cancer prevention, management, and supportive care. This integrative approach may reduce toxin-induced pathologies and promote systemic resilience and well-being.

Keywords: Bilwadi Agada, Carcinogens, Dushivisha, Garavisha

INTRODUCTION

Cancer is leading to global health crisis, with approximately 20 million new cases and 9.7 million deaths recorded in 2022. It is estimated that 1 in 5 individuals will develop cancer in their lifetime, with 1 in 9 men and 1 in 12 women dying from the disease.¹ Cancer comprises a range of conditions marked by uncontrolled cell growth and metastasis. Tumors, whether benign or malignant, pose varying risks, with malignant ones invading healthy tissues and often resulting in severe outcomes if untreated.

According to the **International Agency for Research on Cancer (IARC), Group 1 carcinogens** include tobacco smoke, ultraviolet radiation, alcohol, and processed meats.² Modern lifestyles expose individuals to carcinogens through air pollution, chemicals, food additives, and synthetic materials. These exposures accumulate subtly over time, playing a significant role in the development of chronic illnesses, including cancer.

Ayurveda, the traditional system of medicine from India, provides a comprehensive framework for understanding toxin-related diseases through the discipline of Agad Tantra (Ayurvedic toxicology). Within this context, the concepts of Garavisha (artificial toxicity) refers to a type of poison formed by combining different toxic substances.³ and Dushivisha (cumulative toxicity)

is a low potent slowly progressing poison it affects all dhatus gradually.⁴

A comprehensive review of classical Ayurvedic texts including Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya was conducted to analyze the concepts of Garavisha and Dushivisha. Scientific literature from databases such as PubMed, Google Scholar, and official reports from IARC and the World Health Organization (WHO) were examined to draw correlations between these Ayurvedic constructs and contemporary understandings of carcinogenesis.

In Ayurveda, Garavisha refers to a type of artificial or synthetic poison created by combining two or more non-lethal substances, which, when combined, produce toxic effects on the body. Similarly, Dushivisha refers to a form of cumulative toxicity where low-potency poisons remain in the body and gradually spread across all dhatus (tissues), slowly impairing physiological functions.

From a modern biomedical perspective, both Garavisha and Dushivisha can be associated with the effects of carcinogens agents known to trigger or accelerate cancer development. These harmful substances are commonly present in synthetic compounds, environmental pollutants, processed food additives, pesticides, and various industrial or cosmetic products. Over time,

such toxins can accumulate in the body without immediate symptoms, disturb the natural doshic equilibrium, and potentially lead to chronic illnesses like cancer. In our daily lives, we are frequently exposed both knowingly and unknowingly to various carcinogens that gradually become integrated into our routines such as shown in Table 1.

Common Carcinogen Correlation with Dushivisha and Garavisha

- In Agad Tantra, browned and crispy foods like fried potatoes and toasted bread are considered Viruddha Ahara, leading to Garavisha due to acrylamide formation from high-heat cooking. Though not acutely toxic, repeated exposure allows acrylamide to act as Dushivisha, gradually disturbing doshic balance and contributing to chronic diseases like cancer.
- Excessive exposure to sunlight and UV rays - whether from natural sunlight or artificial tanning beds - can be seen through the lens of Dushivisha in Ayurveda. While sunlight itself is generally beneficial in moderate amounts, overexposure acts as a subtle, lingering toxin. In Ayurvedic terms, this persistent low-level exposure destabilizes the doshas, particularly Pitta, and accumulates as Dushivisha. Over time, the body's tolerance to sunlight decreases due to the buildup of toxins, leading to impaired immune response. This weakening of both systemic and skin immunity further increases susceptibility to UV-related damage and skin diseases.
- Processed meats, such as those in cold-cut sandwiches, are often preserved with nitrates and nitrites and cooked at high temperatures - a process that creates harmful compounds like polycyclic amines and heterocyclic amines cause cancer in the body. In the Ayurvedic context, these elements represent Garavisha - harmful substances blended with other, seemingly harmless food components.
- Among the many carcinogens found in tobacco smoke are tobacco-specific nitrosamines (TSNAs) and polycyclic aromatic hydrocarbons (PAHs). These substances damage DNA and disrupt normal cell growth, ultimately leading to uncontrolled cell division and tumor formation. In Ayurveda, the concept of "Dushivisha" refers to low-grade, cumulative toxins that persist in the body and gradually weaken it over time. Tobacco smoke, with its array of carcinogens, can be seen as a modern example of "Dushivisha," as the repeated exposure to these toxins accumulates and causes chronic disease, including cancer.
- Radon exposure doesn't cause immediate harm. Instead, the radioactive particles gradually accumulate causing damage in the lung tissues, mirroring the delayed action of Garavisha and Dushivisha thus triggering disease. Over time, the latent damage to DNA caused by inhaled radon can trigger lung cancer- similar to how Dushivisha remains dormant but can cause disease later under certain triggers.
- Polluted air and exhaust from vehicles can also increase cancer risk, particularly lung cancer as well as other cancers such as breast cancer because it has polycyclic aromatic hydrocarbons and benzene that can act like Garavisha because they are created from the combustion of fossil fuels, industrial activities, and urban pollution- unnatural, human-made toxins. Over time, these pollutants accumulate in the body, just as Dushivisha accumulates, leading to chronic oxidative stress, DNA damage, and health problems. When the body's Agni (metabolism) and immunity weaken, these "dormant poisons" (Dushivisha) become more active, causing DNA mutations and epigenetic changes that trigger diseases.
- Bisphenol A (BPA), a synthetic chemical from unnatural combinations, mirrors Garavisha in Ayurveda. Its hormone-

mimicking, bio-accumulative nature causes subtle, long-term harm, aligning with Dushivisha- a dormant toxin that disrupts health under favorable condition.

- Alcohol mimics the Srotorodha (channel blockage) that Ayurveda ascribes to Dushivisha by causing persistent tissue inflammation. This inflammation is subtle and persistent, just like the slow, cumulative effects of Dushivisha in the body. Alcohol's ability to damage DNA echoes the insidious, mutagenic impact of Dushivisha on the body's cellular intelligence (cell cycle control).
- Formaldehyde's small exposures over time (like low-grade Dushivisha) don't cause immediate toxicity but accumulate cellular damage. Trigger Factors: When the immune system weakens or environmental exposures worsen, formaldehyde's DNA damage can manifest as cancer - much like Dushivisha becomes active when doshas are imbalanced. Gradual, Formaldehyde's DNA cross-linking and mutagenesis parallels Dushivisha's slow destruction of the body's inner harmony.
- Polychlorinated biphenyls (PCBs) are toxic, man-made chemicals once used in industry, now banned but still present in food, soil, and water. They enter the body through contaminated food, reflecting Garavisha's entry via external sources. PCBs persist in fat tissues for years, much like Dushivisha's presence. Their effects remain hidden until immunity or doshas are disturbed. They can induce organ damage, immunological malfunction, and malignancy if they are activated. This mirrors Dushivisha's latent toxicity and long-term health impact.

Principles of Management According to Agad Tantra

Preventive Aspects

1. Nidana Parivarjan: Educating patients about avoiding detrimental lifestyle habits, such as Samashana (incompatible foods together), Vishamasana (irregular eating), Adhyashana (eating before digestion),¹⁵ irregular sleep patterns, excessive screen time (especially before bedtime), and minimizing exposure to pesticides.
2. Regular Use of Antitoxic Rasayanas: According to Ashtanga Hridaya, Purvam sarirasya abhisamskriti,¹⁶ which means prior purification of the body is essential. Beginning treatment with initial detoxification and continuing with regular use of Dushivisha may help prevent toxin accumulation and support overall health.

Treatment Aspects

Shodhana: Vishaghnā cha vidhim sarvaṁ kuryat saṁśodhanāni cha,¹⁷ All therapeutic measures that counteract toxins (Vishaghna) and detoxification procedures (Saṁśodhana) should be undertaken.

Shodhana include -

- Virechana (therapeutic purgation) and Vamana (therapeutic emesis) support gastrointestinal detoxification.
- These methods help eliminate carcinogen-induced Visha (toxins) and restore Agni (digestive fire), often impaired during chemotherapy.

Chaturvimshati Upakarmas: Among the Chaturvimshati Upakarmas¹⁸ (the 24 therapeutic procedures in Agad Tantra), the selection and application of specific interventions are tailored based on the principles of Roga (disease) and Rogi (patient) assessment. This individualized approach is particularly relevant for managing chronic and complex conditions such as cancer.

Aushadham (medicines)- which include Agada Yogas (Anti-Toxic Formulations). Formulations like Murvadi Agada¹⁹ and Sanjeevani Agada²⁰ are polyherbal compounds traditionally used to neutralize both Garavisha (artificial toxicity), and Dushivisha (cumulative toxicity).

Prashamanam (pacification)-which alleviates doshic imbalances due to toxins (Garavisha and Dushivisha) and disease symptoms through internal medications like Patolakaturohinyadi Kashayam²¹ and Avipathi Churanam.²²

Rasayana (Immune Restoration): Rasayana therapies like Kalyanak Ghrita²³, Ajeya Ghrita²⁴ and Dushivishari Agada²⁵ enhance tissue regeneration, immunity and cellular repair. These are especially valuable in remission and post-treatment phases, promoting recovery from bone marrow suppression and improving mental clarity and vitality. Additionally, these medicated Ghritas have also demonstrated potential in alleviating oxidative stress, fatigue, and nausea associated with cancer therapies.

DISCUSSION

The Ayurvedic concepts of Garavisha (artificial toxicity) and Dushivisha (cumulative toxicity) provide a valuable lens to interpret the cumulative toxic exposures implicated in chronic diseases, including cancer. Garavisha parallels modern carcinogens such as acrylamide, nitrites, and polycyclic aromatic hydrocarbons, which enter the body through diet and environment. Dushivisha aligns with toxins like BPA, formaldehyde, tobacco smoke, and UV radiation—substances that persist in the body, causing oxidative stress and DNA damage under conducive conditions like weakened immunity or metabolic imbalance. This framework echoes current biomedical models linking chronic inflammation, environmental toxins, and epigenetic changes to cancer. Avoiding Garavisha and Dushivisha and use antitoxic Rasayana for optimal well-being and Agad Tantra approaches— Shodhana (detoxification), Agada Yogas (anti-toxic medicines), Aushadham (medicines), Prashamanam (pacification) and Rasayana (Immune restoration) offer integrative strategies for reducing toxicity and supporting recovery during cancer therapy. Formulations such as Murvadi Agada, Sanjeevani Agada, Patolakaturohinyadi Kashayam, Avipathi Churanam, Kalyanak Ghrita Ajeya Ghrita and Dushivishari Agada, have shown potential in mitigating artificial toxins and dormant toxins, chemotherapy-induced side effects, enhancing immunity, and reducing oxidative stress. Ayurveda thus provides a comprehensive, evidence-aligned framework for cancer prevention and supportive care.

CONCLUSION

The integration of Agad Tantra concepts, such as Garajanya Dushi Visha, with modern understandings of carcinogen exposure, offers a comprehensive framework for cancer prevention and supportive care. By incorporating preventive measures and management strategies, including Shodhana, Agada Yogas, Prashamanam and Rasayana therapies individuals may be able to mitigate the adverse effects of environmental toxins and enhance their overall well-being. Further research into the efficacy of Agada formulations such as Murvadi Agada, Sanjeevani Agada, Patolakaturohinyadi Kashayam, Avipathi Churanam, Kalyanak Ghrita, Ajeya Ghrita and Dushivishari Agada may provide a valuable adjunct to conventional cancer therapies, potentially reducing treatment-related side effects and improving patient outcomes. This holistic approach, grounded in both traditional wisdom and contemporary scientific understanding,

holds promise for improving cancer outcomes and fostering optimal health.

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