

**EVIDENCE-BASED APPROACHES TO CHRONIC DISEASE  
MANAGEMENT: A PERSPECTIVE FROM AGAD TANTRA****Ravi Dalal\*<sup>1</sup>, Sonal Makwana<sup>2</sup>, Sushant Sud<sup>3</sup>, Megha Pandya<sup>4</sup>**

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**ABSTRACT**

**Background:** Chronic noncommunicable diseases (NCDs) like diabetes, heart disease, cancer, and chronic kidney disease are the leading causes of sickness and death worldwide. Long-term exposure to "toxins" from the environment, metabolism, and lifestyle is increasingly linked to their development. Ayurveda uses Agad Tantra terms like "Visha," "Dushi Visha" (latent poisons), and "Vishakta Ahara" (toxic food) to perceive cumulative negative exposures. Modern concepts include oxidative stress, long-term inflammation, and foreign substance burden. We employed a narrative integrative method to compare ancient Ayurvedic texts and modern biological material. A critical comparison between Ayurvedic toxicity and modern pathophysiological frameworks focused on detoxification and treatment. The study found several similarities between Dushi Visha and the buildup of chemicals that cause NCDs. Mitochondrial dysfunction, systemic

inflammation, and immunological dysregulation match Ayurvedic descriptions of vitiated Dosha and diminished Dhatu metabolism. Agad Tantra therapies like Vishaghna Dravya, Panchakarma, and nutrition can reduce toxins and restore equilibrium. Conclusion: Agad Tantra principles and evidence-based modern medicine offer a promising paradigm for

chronic disease prevention and management. Toxin removal, personalized care, and lifestyle changes are the goals of this service. Additional clinical validation and translational research are needed to prove that integrative techniques are effective, safe, and useful in everyday practice.

**KEYWORD:** *Agad Tantra, Dushi Visha, Vishaghna Dravya, chronic disease, integrative medicine, Ayurveda.*

## BACKGROUND

The burden of non-communicable diseases (NCDs) is growing around the world. Managing them is getting harder because of multimorbidity, polypharmacy, and long-term exposure to dietary and environmental risk factors.<sup>[1,2]</sup> Traditional ways of managing chronic diseases focus on medication, changing risk factors, and teaching patients how to manage their own health. However, they often don't do a good job of addressing cumulative toxic burden and individualized preventive approaches.<sup>[3]</sup> Ayurveda, and especially Agad Tantra (Ayurvedic toxicology), gives us a complete way to look at disease through the lens of toxicological exposure and systemic imbalance. It describes a wide range of toxic states, from acute poisoning to chronic, subclinical, and cumulative toxicity. These states can be linked to modern ideas like low-grade systemic inflammation, metabolic endotoxemia, and exposure to environmental toxins.<sup>[4,5]</sup> This holistic view lets us see chronic diseases not just as problems with specific organs, but also as signs of long-term toxicological damage that throws off the body's balance.

The main goal of Agad Tantra is to find, neutralize, and control Visha (poisons) that come from both living and nonliving things, such as animal venoms, plant and mineral toxins, and synthetic chemicals.<sup>[6]</sup> In modern interpretations, this includes toxic substances found in the workplace and in industry, as well as drug-related toxicity, drug-induced organ damage (hepatotoxicity, nephrotoxicity, neurotoxicity), cancer-causing substances, and long-term skin conditions.<sup>[7]</sup> The classical Ayurvedic idea of Dushi Visha is very similar to modern scientific ideas about bioaccumulation, persistent organic pollutants, and chronic xenobiotic exposure. These ideas say that low-dose toxins stay in the body and slowly damage the Dhatus (tissues).<sup>[8,9]</sup>

In the same way, the idea of Vishakta Ahara refers to food that is dirty, not processed correctly, or not compatible with other foods, which causes problems in the gut and

throughout the body. This can be linked to modern worries like toxins in food, chemical additives, pesticide residues, and metabolic problems that come from eating a lot of processed foods.<sup>[10,11]</sup> Ayurveda also stresses the importance of Ojas as a key factor in immunity and systemic resilience, as it protects against the harmful effects of toxic exposure.<sup>[12]</sup> Vishaghna Dravyas (antitoxic substances) are said to be able to neutralize toxins, boost Ojas, lower inflammation, and change how the immune system works.<sup>[13]</sup>

The three concepts of Visha, Dushi Visha, and Ojas work together to give us a complete picture of how chronic diseases start and get worse because of long-term, low-level exposure to toxins. This is what leads to the start and progression of NCDs.

## METHOD

### Pathophysiology of Chronic Diseases and “Toxic” Processes

Recent scientific evidence indicates that oxidative stress, chronic low-grade inflammation, mitochondrial dysfunction, dysbiosis, and endothelial injury are central mechanisms underlying the development of chronic non-communicable diseases (NCDs).<sup>[14-16]</sup> Environmental and lifestyle-related exposures—including heavy metals, endocrine-disrupting chemicals, tobacco, alcohol, and ultra-processed foods—contribute significantly to this internal “toxic milieu,” promoting systemic dysfunction and disease progression.<sup>[17-18]</sup> These mechanisms closely parallel the Ayurvedic concept of *Dushi Visha*, wherein low-grade toxins persist within the body and gradually vitiate *Rasadi Dhatus*, leading to clinical manifestations such as dermatological disorders, gastrointestinal disturbances, edema, neurocognitive impairment, and multi-organ dysfunction.<sup>[19]</sup>

Integrative and Ayurveda-based models of chronic disease emphasize early detection of subclinical imbalances, elimination of etiological factors (*Nidana Parivarjana*), and strengthening of host defense mechanisms rather than solely focusing on late-stage symptom control.<sup>[20]</sup> Both clinical observations and theoretical frameworks suggest that Ayurvedic interventions—including dietary regulation (*Ahara*), lifestyle modification (*Vihara*), detoxification therapies (*Shodhana*), and individualized herbal formulations—can complement biomedical approaches in managing NCDs.<sup>[21,22]</sup>

### Vishaghna Dravya and Their Scientific Correlates

Classical Ayurvedic texts describe numerous *Vishaghna Mahakashaya* (groups of antitoxic drugs), comprising medicinal plants that have been demonstrated in modern research to

possess antioxidant, hepatoprotective, anti-inflammatory, immunomodulatory, and anticancer properties.<sup>[23]</sup> Many *Vishaghna Dravyas* exhibit cytoprotective and organ-protective actions, along with significant free radical scavenging activity, providing a scientific basis for their use in conditions characterized by oxidative and inflammatory damage.<sup>[24]</sup>

Experimental studies have shown that formulations such as *Vishaghna Mahakashaya* exhibit notable antioxidant and hepatoprotective effects, indicating their potential role in preventing liver injury induced by drugs, toxins, and metabolic disorders.<sup>[25]</sup> Furthermore, several herbs categorized under *Vishaghna Dravya* demonstrate anti-inflammatory, antimicrobial, and immunomodulatory effects, which may be beneficial in the management of chronic infections, autoimmune diseases, and cancer-associated toxicity.<sup>[26]</sup> These findings support the therapeutic relevance of *Vishaghna Dravya* in mitigating cumulative toxic and inflammatory burden in chronic disease states.

Final year observational and interventional studies suggest that Ayurveda-based integrative therapies can be effective in managing chronic conditions such as diabetes mellitus, cardiovascular diseases, and arthritis, particularly when combined with dietary interventions, yoga, and lifestyle modifications.<sup>[27-28]</sup> Research in integrative medicine further demonstrates that plant-based diets, stress reduction techniques, and mind-body interventions—aligned with Ayurvedic principles of *Ahara* and *Vihara*—contribute to reduced NCD risk and improved quality of life.<sup>[29]</sup>

Recent studies also indicate high patient acceptability and practitioner support for Ayurvedic interventions due to their holistic, individualized approach and relatively low incidence of adverse effects.<sup>[30]</sup> Additionally, emerging evidence suggests that integrating traditional medicine with conventional chronic disease management programs may enhance symptom control, optimize medication use, improve self-efficacy, and reduce healthcare utilization.<sup>[31]</sup> However, the lack of large-scale randomized controlled trials remains a limitation, underscoring the need for structured, evidence-based Agad Tantra-informed protocols in chronic disease management pathways.<sup>[32]</sup>

### **Agad Tantra in Long-Term Environmental and Food-Related Toxicity**

Agad Tantra is increasingly relevant in the context of environmental toxicology, given the rising exposure to pollutants in air, water, soil, and occupational settings.<sup>[33]</sup> Scholarly analyses indicate that Ayurvedic toxicology provides a valuable framework for identifying

and managing chronic low-dose exposures, particularly in scenarios where modern medicine primarily addresses acute toxicity or where multiple exposures complicate diagnosis.<sup>[34]</sup>

The Ayurvedic concept of *Vishakta Ahara*—referring to contaminated, incompatible, or improperly processed food—closely aligns with modern approaches to food safety, elimination diets, and gut restoration therapies.<sup>[35]</sup> Strategies such as the identification of harmful dietary components, detoxification therapies, and dietary regulation reflect contemporary interventions targeting pesticide residues, heavy metals, food additives, and microbiome imbalance.<sup>[36]</sup> Thus, integrating Agad Tantra principles into chronic disease management can address often-overlooked exposure-related determinants, contributing to improved long-term health outcomes.

## RESULTS

### Conceptual Correlation Between Agad Tantra and Modern Toxicology

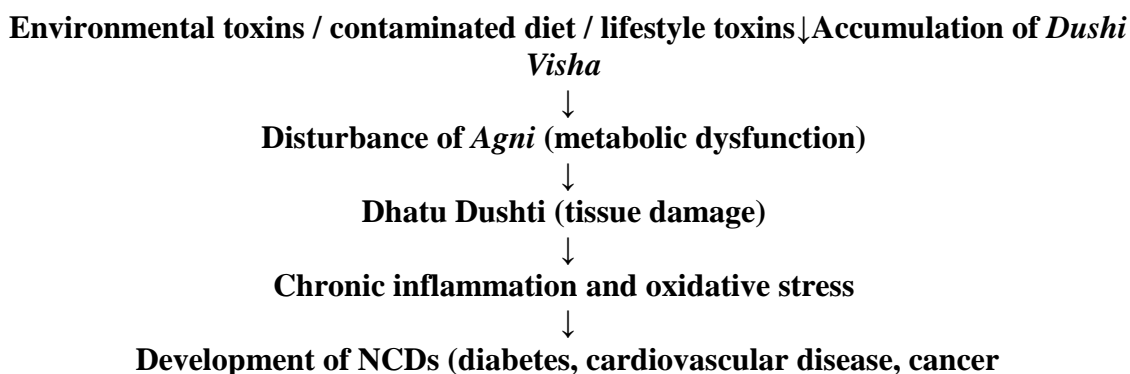
The comparative analysis of Ayurvedic toxicological concepts with modern biomedical frameworks demonstrates significant conceptual overlap, particularly in understanding chronic disease as a consequence of cumulative toxic exposure. These correlations highlight the translational relevance of Agad Tantra in contemporary health sciences.

**Table 1: Correlation Between Agad Tantra Concepts and Modern Biomedical Concepts.**

Ayurvedic Concept	Description	Modern Scientific Parallel
<i>Visha</i>	Toxic substances affecting body systems	Environmental toxins, chemicals, pollutants <sup>[7,17]</sup>
<i>Dushi Visha</i>	Latent toxins accumulating in tissues	Bioaccumulation of xenobiotics <sup>[9,36]</sup>
<i>Vishakta Ahara</i>	Contaminated or incompatible food	Food additives, pesticides, ultra-processed foods <sup>[10,11]</sup>
<i>Ojas</i>	Vital essence responsible for immunity	Immune resilience and systemic homeostasis <sup>[12,14]</sup>
<i>Vishaghna Dravya</i>	Anti-toxic substances	Antioxidant and detoxifying agents <sup>[13,24]</sup>

### Pathophysiological Mechanisms Linking Toxins and Chronic Disease

The synthesis of classical Ayurvedic theory and modern biomedical evidence suggests a stepwise progression linking toxic exposure to chronic disease development.



Mechanistically, toxic exposures contribute to chronic diseases through multiple interconnected pathways, including

- Oxidative stress
- Chronic systemic inflammation
- Endothelial dysfunction
- Mitochondrial damage
- Immune dysregulation
- Gut microbiome imbalance

These mechanisms closely correspond with Ayurvedic descriptions of *Dhatu Dushti* and systemic derangement caused by persistent exposure to *Dushi Visha*.

### Pharmacological Relevance of Vishaghna Dravya

Classical *Vishaghna Dravya* demonstrates pharmacological activities that are highly relevant to the management of chronic diseases characterized by toxic and inflammatory burdens.

**Table 2: Pharmacological Correlates of Selected Vishaghna Dravya.**

Herb	Ayurvedic Property	Modern Pharmacological Evidence
<i>Haridra (Curcuma longa)</i>	<i>Vishaghna, Krimighna</i>	Anti-inflammatory, antioxidant <sup>[24,26]</sup>
<i>Guduchi (Tinospora cordifolia)</i>	<i>Rasayana, Vishaghna</i>	Immunomodulatory, hepatoprotective <sup>[21,25]</sup>
<i>Nimba (Azadirachta indica)</i>	<i>Krimighna, Vishaghna</i>	Antimicrobial, anti-inflammatory <sup>[26]</sup>
<i>Manjistha (Rubia cordifolia)</i>	<i>Raktashodhaka</i>	Antioxidant, anti-inflammatory <sup>[24]</sup>
<i>Triphala</i>	Detoxifying	Gut microbiome modulation <sup>[35]</sup>
<i>Yashtimadhu (Glycyrrhiza glabra)</i>	<i>Rasayana</i>	Anti-ulcer, hepatoprotective <sup>[25]</sup>

Collectively, *Vishaghna Dravya* exhibit multiple therapeutic actions, including:

- Antioxidant effects
- Anti-inflammatory activity
- Hepatoprotective action
- Immunomodulatory effects
- Cytoprotective properties

These pharmacological properties provide a mechanistic basis for their role in counteracting oxidative stress, inflammation, and toxin-induced cellular injury underlying chronic diseases.

#### Integrative Management of Chronic Diseases

Evidence from integrative medicine research indicates that Ayurveda-based interventions can improve clinical outcomes in chronic diseases when combined with conventional therapies.<sup>[21,27,31]</sup>

These approaches include

- Dietary modification (*Ahara*)
- Herbal therapy (*Dravyachikitsa*)
- Detoxification procedures (*Shodhana*)
- Yoga and stress management
- Lifestyle interventions (*Vihara*)

Such strategies emphasize removal of etiological factors (*Nidana Parivarjana*), detoxification of accumulated toxins, and enhancement of systemic resilience (*Ojas*), which are central principles of Agad Tantra.<sup>[20,12]</sup> Emerging evidence suggests that these integrative approaches may improve symptom control, enhance quality of life, and reduce disease progression in NCDs.<sup>[30,31,32]</sup>

#### DISCUSSION

Suggested therapeutic framework for dealing with chronic diseases with Agad Tantra

Using Agad Tantra principles in the management of chronic diseases gives you a structured and evidence-based way to deal with cumulative toxic exposure, metabolic dysfunction, and systemic resilience.<sup>[20,21,34]</sup> A step-by-step therapeutic framework can be suggested based on both traditional Ayurvedic ideas and modern scientific knowledge.

The first step is to look at the person's toxic load and exposure, which includes a full review of their diet, work-related risks, environmental exposures, substance use, and medication history to find possible sources like Visha, Dushi Visha, and Vishakta Ahara.<sup>[17,33,36]</sup> Clinical assessment should look for signs of chronic low-grade toxicity in the gastrointestinal, dermatological, neurocognitive, and metabolic systems. This should be backed up by biomedical tests like liver and kidney function tests, inflammatory markers, and metabolic profiling.<sup>[14,18]</sup>

The next step stresses getting rid of and lowering harmful exposures, which is in line with the Ayurvedic idea of Nidana Parivarjana. Counseling strategies that help people stop or cut back on smoking, drinking, eating ultra-processed foods, and being around toxins at work or in the environment are very important for reducing the amount of toxins they are exposed to in the future.<sup>[10,17,29]</sup>

Dietary correction is a key part, and it focuses on fresh, minimally processed foods that improve digestion (Agni) and lower exposure to foods that don't work well with your body or are contaminated (Vishakta Ahara). These kinds of treatments are in line with modern dietary approaches that aim to lower inflammation and improve metabolic health.<sup>[29]</sup>

Detoxification and Vishaghna interventions use purification therapies in a smart way, including mild to moderate Panchakarma procedures when they are appropriate, to help get rid of toxins that have built up 20. Along with biomedical monitoring, these interventions should be put into place to make sure they are safe and work. At the same time, giving Vishaghna Dravya, which has been shown to have antioxidant, hepatoprotective, renoprotective, and immunomodulatory effects, may help fight oxidative stress and chronic inflammation, especially in people whose organs are not working properly because of toxins.<sup>[24-26]</sup>

Long-term management focuses on restoring Ojas and systemic resilience. This includes Rasayana therapies, getting enough sleep, managing stress, getting enough exercise, and following a personalized diet and herbal regimen to support immune function and metabolic stability.<sup>[12,21]</sup> These plans fit with new evidence that shows how lifestyle changes and mind-body practices can help people with chronic diseases.<sup>[28,29]</sup>

Finally, it is important to combine this with regular medical care to make sure that the management is complete and safe. Agad Tantra-based treatments can work better when they are used with established guideline-based treatments like pharmacotherapy, rehabilitation, and digital health tools. This can lead to better therapeutic outcomes, better patient adherence, and better long-term disease control.<sup>[31,32]</sup> This model supports a patient-centered, holistic approach while still being scientifically sound and safe for patients.

### Proposed Integrative Framework

Phase	Intervention
Assessment	Detailed history of diet, lifestyle, and environmental exposure <sup>[17,33]</sup>
Toxic Load Reduction	Avoidance of tobacco, alcohol, and pollutants <sup>[10,17]</sup>
Dietary Regulation	Emphasis on fresh, minimally processed foods <sup>[10,29]</sup>
Detoxification	Panchakarma or mild detoxification procedures <sup>[20]</sup>
Vishaghna Therapy	Administration of antitoxic herbal formulations <sup>[24-26]</sup>
Ojas Restoration	Rasayana therapy, stress reduction, sleep regulation <sup>[12,28]</sup>
Integrative Care	Combination with conventional medical treatment <sup>[31,32]</sup>

### CONCLUSION

From an Agad Tantra viewpoint, chronic diseases are perceived as enduring expressions of internal and external toxic disturbances, encompassing Dushi Visha, Vishakta Ahara, and the depletion of Ojas.<sup>[10,12]</sup> This expansive toxicological perspective on NCDs is in strong agreement with modern biomedical findings that emphasize the contributions of oxidative stress, chronic inflammation, environmental toxicants, and metabolic dysfunction to disease pathogenesis.<sup>[18,36]</sup> Moreover, the growing scientific endorsement of plant-based nutrition, lifestyle modifications, and integrative therapeutic approaches underscores the significance of Ayurvedic principles in the prevention and management of chronic diseases.<sup>[29,31]</sup>

Agad Tantra provides a systematic and evidence-based framework for the management of chronic diseases through the integration of Vishaghna Dravya, detoxification methods, and Ojas-enhancing protocols in conjunction with standard biomedical treatment.<sup>[20,21,24]</sup> This integrative approach not only focuses on controlling symptoms but also tackles the underlying causes, including cumulative toxic exposure, impaired metabolism, and diminished systemic resilience.

Nonetheless, notwithstanding encouraging theoretical frameworks and nascent clinical data, there exists a substantial necessity for rigorous randomized controlled trials assessing Agad Tantra-based interventions in chronic disease contexts.<sup>[32,34]</sup> Standardization of Vishaghna

formulations, evaluation of dose–response relationships, assessment of herb–drug interactions, and development of quantifiable biomarkers associated with Dushi Visha-like states are essential research priorities.<sup>[24,34]</sup> Cooperation between Ayurvedic institutions and biomedical research centers is necessary to produce reliable data on safety, efficacy, and cost-effectiveness, thus enabling evidence-based policy development and broader clinical integration.<sup>[31,33]</sup>

## LEGAL AND ETHICAL CONSIDERATIONS

Agad Tantra naturally includes medical and legal aspects because it has to do with poisoning, forensic medicine, and the legal duties of doctors.<sup>[19,34]</sup> So, when using Agad Tantra principles to manage chronic diseases, you must follow the rules and ethics that are already in place. This includes following national healthcare rules, keeping good records, getting informed consent, and keeping an eye on therapeutic interventions, especially herbal treatments and detoxification procedures.<sup>[31,33]</sup>

It is important to protect patients' health by making sure that pharmacovigilance, quality control of herbal drugs, and following safety standards are all in place. This will also help responsibly combine traditional knowledge with modern healthcare systems.<sup>[24,31]</sup> When combining Ayurvedic and conventional therapies, ethical practice also means being open, putting the patient first, and making decisions based on evidence.

Agad Tantra can be effectively used in integrative healthcare models as long as strict legal and ethical standards are followed. This will encourage new ways to manage chronic diseases while protecting patient safety and public health.

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