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**UNDERSTANDING PRESCRIPTION CASCADES, HOW THEY LEAD TO EVENTS  
OF POLYPHARMACY, AND ADDRESSING THEM WITH AYURVEDIC INSIGHTS  
OF IDEAL TREATMENT PROTOCOL TO MINIMIZE INAPPROPRIATE  
PRESCRIBING W.S.R. TO CHARAKA SAMHITA**

**VYAS A\***

Assistant Professor, Department of Samhita and Siddhanta, Parul Institute of Ayurved and  
Research (PIAYR), Ishwarpura, Parul University, Vadodara – 391760

\*Corresponding Author: Dr. Agnya Vyas: E Mail: [parulsamhita2023@gmail.com](mailto:parulsamhita2023@gmail.com)

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**ABSTRACT**

Prescription cascades occur when adverse drug reactions (ADRs) are mistaken for new diseases, leading to the unnecessary prescription of additional medications. This cycle often results in polypharmacy, particularly among the elderly and individuals with multiple health conditions. Excessive medication use increases the risk of adverse effects, healthcare costs, and poor patient compliance, further complicating overall health management. In contrast, Ayurveda advocates a holistic and individualized approach to treatment through the principle of *Shuddha Chikitsa* (pure treatment). This approach focuses on precise diagnostics and patient-specific treatment protocols, ensuring that only necessary medications are prescribed. One of the key diagnostic frameworks given in Ayurveda, *Dashavidha Parikshya Bhava* (Ten-fold examination), provides a systematic and comprehensive approach to patient assessment, aiding in precise diagnosis, preventing inappropriate prescriptions, and minimizing the risk of cascading drug reactions. This article explores the mechanisms and risks associated with prescription cascades and polypharmacy while presenting *Chikitsa Siddhanta* as described by *Acharya Charaka* for rational prescribing. By integrating traditional wisdom with modern deprescribing strategies, this paper advocates for a patient-centered, comprehensive approach to medication management. Implementing these principles can help minimize the risks

associated with overmedication, enhance treatment efficacy, and promote long-term health outcomes.

**Keywords:** Prescription cascade, Polypharmacy, Inappropriate Prescribing, *Shuddha Chikitsa*, *Dashvidh parikshya bhav*

## INTRODUCTION

Prescribing cascades, first identified by Rochon and Gurwitz in 1995, occur when adverse drug reactions (ADRs) are misinterpreted as new medical conditions, leading to unnecessary or potentially harmful prescriptions [1]. Prescription cascades represent a critical and widespread issue in modern medicine, particularly impacting elderly patients who are often prescribed additional medications to address side effects that are mistakenly perceived as new illnesses. This escalating trend exacerbates polypharmacy, significantly increasing the risk of adverse drug reactions (ADRs), hospitalizations, and potentially life-threatening outcomes [2]. The WHO's Global Patient Safety Challenge: Medication Without Harm aims to reduce severe and preventable medication-related harm by 50% within five years. It highlights essential strategies for improving medication safety at local, national, and global levels. Preventing prescribing cascades requires the timely identification of ADRs, while their reversal can be achieved by dose reduction, discontinuation of the causative medication, or substitution with safer pharmacotherapeutic alternatives. The WHO's Global Patient Safety Challenge:

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*Acharya Charaka* widely regarded as the Father of Medicine, is the *Pratisanskarta* (Reviser and Redactor) of the *Charaka Samhita*, one of the most authoritative and invaluable texts on *Kaya Chikitsa* (Internal medicine) in Ayurveda. This classical treatise establishes fundamental principles of treatment protocols, medical ethics, and a patient-centered approach, establishing its significance in the Ayurvedic medical system. The phrase "*Charakastu Chikitsite Shreshtha*" highlights his profound contributions to the field of medicine. His teachings provide essential guidance for rational prescribing, individualized patient care, and the prevention of prescription cascades, ensuring that therapeutic

interventions remain both effective and ethical. The unique concept of *Shuddha Chikitsa* (Pure treatment) given by him offers a constructive alternative that focuses on holistic, minimalistic, and precise methods to prevent complications associated with inappropriate drug use. Additionally, *Acharya Charaka* acknowledges the potential risks associated with excessive medicinal consumption, known as *Bheshaja Bhooyastvam*, and encourages a cautious approach by advocating against the simultaneous use of multiple drugs unless necessary. This article examines the mechanism of prescription cascades, explores their broader implications, and evaluates *Acharya Charaka's* therapeutic principles in the context of modern medical ethics and rational prescribing. By integrating these classical insights with contemporary medical practices, this discussion aims to highlight the enduring relevance of *Acharya Charaka's* philosophy in promoting safe and effective healthcare.

#### AIMS AND OBJECTIVES

1. To evaluate the impact of prescribing cascades on patient safety and healthcare outcomes.
2. To explore the concepts outlined in the *Charaka Samhita* for their relevance in preventing prescription cascades and promoting rational prescribing.

#### MATERIALS AND METHODS

This study reviews modern medical research on prescription cascades alongside classical Ayurvedic texts particularly the *Charak Samhita* to understand its perspectives on rational prescribing. It explores key Ayurvedic principles such as *Shuddha Chikitsa*, *Bheshaja Bhooyastvam*, and *Dashavidha Parikshya Bhava*, comparing them with modern prescribing strategies. Additionally, real-world case studies are examined to highlight the practical impact of prescription cascades. The study further explores how understanding and integrating Ayurvedic concepts can contribute to effective disease management by providing a holistic and rational approach to prescribing.

#### LITERATURE REVIEW

The Mechanism of Prescription Cascade:

A prescribing cascade occurs when a medication's side effect is misinterpreted as a new medical condition, resulting in the prescription of additional drugs. This cycle of drug-induced symptoms and subsequent treatments can promote irrational prescribing patterns. Over time, such practices often contribute to polypharmacy, commonly defined as the simultaneous use of five or more medications that substantially enhance the susceptibility to adverse health consequences [3]. For instance, physicians often prescribe a proton pump inhibitor alongside a non-steroidal

anti-inflammatory drug to reduce the risk of gastrointestinal bleeding or include a laxative while prescribing opioids to manage opioid-induced constipation. While these additions can be necessary in some cases, it is essential to carefully evaluate the risks and benefits of increasing a patient's medication regimen. Unchecked prescribing cascades can lead to concomitant drug effect, amplified side effects, higher healthcare costs, and overall adverse health consequences. Therefore, minimizing unnecessary prescriptions is essential for safer, more effective patient care [4]. Another example involves a patient prescribed ACE inhibitors for hypertension who develops a chronic cough, a known side effect of this medication. Instead of discontinuing the ACE inhibitor, the physician prescribes a cough suppressant. If the cough persists, an antibiotic may be added under the assumption of a bacterial infection, further increasing the number of prescriptions [5].

#### **Inappropriate Prescribing:**

Inappropriate prescribing includes misprescription, underprescription, and overprescription. Misprescribing occurs when the risks of a medication exceed its benefits, such as improper dosing or unsafe drug combinations. Underprescription involves failing to prescribe essential medications, while overprescription involves prescribing drugs that are not

indicated for a particular condition. Each of these prescribing errors can contribute to adverse health outcomes and should be carefully evaluated in clinical practice. Medications commonly associated with prescribing cascades include those for dementia, antihypertensives, sedatives, opioids, NSAIDs, antiepileptics, antibiotics, and antiemetics. These drugs often lead to adverse effects that are misinterpreted as new conditions, resulting in additional prescriptions that contribute to polypharmacy and potential medication-related harm [6].

#### **Polypharmacy:**

Polypharmacy is generally described as the use of five or more medications at the same time, whereas excessive polypharmacy refers to the concurrent use of ten or more medications [7]. These definitions help quantify medication burden and assess its impact on patient health. While some studies use different thresholds, the "five or more" criterion is the most widely accepted. Recognizing these thresholds allows healthcare providers to evaluate prescription appropriateness and implement deprescribing strategies when necessary. However, polypharmacy is associated with several negative consequences including adverse drug events, harmful drug interactions, frailty, multimorbidity, medication nonadherence, increased

hospital readmissions, and higher mortality rates.

### Preventing a Prescribing Cascade:

The appropriate prescribing and deprescription of unnecessary medications are global concerns. A medication that was initially prescribed appropriately but is no longer needed is classified as a Potentially Inappropriate Medicine (PIM) [8]. Various strategies have been proposed to minimize PIM use and promote informed, safer prescribing practices. To prevent potential medication side effects new medications should be introduced in small doses and gradually adjusted as needed. When new symptoms arise, particularly after starting or modifying a medication, healthcare providers should assess the possibility of a harmful drug reaction. Healthcare providers should actively inquire about any new symptoms following medication adjustments and offer clear, comprehensive information on potential adverse effects and appropriate responses, such as through Consumer Medicines Information. When prescribing a second medication to manage an adverse reaction caused by the first, careful evaluation is essential to ensure that the benefits of continuing the initial treatment outweigh the potential risks associated with additional drug therapy.

Concept of *shudhdha chikitsa* in Ayurveda:

प्रयोगःशमयेद् व्याधिम् योऽन्यमन्यमुदीरयेत्

नासौ विशुद्धः, शुद्धस्तु शमयेद् यो न कोपयेत् | च. नि. 8. 23

In Ayurveda, *Shuddha Chikitsa* refers to treatments aimed at eliminating disease without creating new imbalances in the body. A treatment is considered pure if it effectively removes the disease without causing additional symptoms or complications [9]. Conversely, it is not regarded as pure if it introduces new symptoms or exacerbates existing conditions. *Acharya Charaka* has previously stated that improper treatment can lead to a combination of diseases (*Vyadhi Sankarya*) [10]. Expounding on this, *Acharya Chakrapani* explains the term *Prayoga Aparishuddhatvat* with an example. In *Amatisara*, if a medication is administered to stop *Atisara* without addressing the root cause, it may lead to complications such as *Shoola* (Abdominal pain), *Adhmana* (Bloating), and *Anaha* (Distension) [11]. Consequently, additional medications will be required to manage these new symptoms, perpetuating a prescribing cascade. This highlights the importance of carefully evaluating the disease and implementing an appropriate treatment protocol from the outset. A well-planned approach helps prevent complications and ensures effective disease management, avoiding unnecessary

polypharmacy and further disease progression.

**Guidelines for diagnostic errors and ideal treatment protocols as per *Charak Samhita*:**

Ayurveda also emphasizes the importance of correctly diagnosing the root cause of the disease to avoid inappropriate treatments, which can be a major contributing factor to prescription cascades. In *Charaka Samhita Vimana Sthana* (Chapters 6–8), detailed guidelines are given to prevent diagnostic errors, which include:

1. *Roganik Vimanam* (Ch. Vi. Chapter 6): Discusses the characteristics of diseases.
2. *Vyadhita Rupiya Vimanam* (Ch. Vi. Chapter 7): Deals with diagnostic errors.
3. *Roga Bhisgjitiya Vimanam* (Ch. Vi. Chapter 8): Provides insights into ideal treatment protocols.

These three chapters stress the importance of understanding the true nature of diseases and avoiding treatments that may aggravate or create new health issues. This philosophy resonates with modern medicine's emphasis on careful diagnosis and rational prescribing to avoid cascading medical interventions.

*Roganik Vimanam Adhyay* (Ch. Vi. Chapter 6):

The classification of diseases in the sixth chapter plays a crucial role in guiding appropriate diagnosis and treatment in

Ayurveda. Each category provides insights into the nature of the disease, helping in precise therapeutic decision-making [12].

Prognosis: Curable (*Sadhya*) and incurable (*Asadhya*).

Severity: Mild (*Mridu*) and severe (*Daruna*).

Origin: Psychogenic (*Manasika*) and somatic (*Sharirika*).

Etiology: Endogenous (*Nija*) and exogenous (*Agantuja*).

Site of manifestation: *Amashaya* (Stomach and upper gastrointestinal tract) and *Pakvashaya* (Lower gastrointestinal tract).

Additionally, it distinguishes between *Anubandhya* (Independent diseases) and *Anubandha* (Secondary or dependent diseases) while also classifying diseases based on predominant *Dosha* and their respective management principles [13].

***Vyadhita rupiya Vimaanam Adhyaya* (Ch. Vi. Chapter 7):**

The seventh chapter, *Vyadhita Rupiya Vimana*, explains how a patient's external presentation can sometimes mislead a physician regarding the actual severity of the disease. To prevent such diagnostic errors, a thorough clinical examination is essential. A precise diagnosis is the foundation of effective treatment in Ayurveda. Misjudging the severity of a disease can lead to either over-treatment or under-treatment, both of which may harm the patient. According to *Charak Samhita*, patients can be categorized

into two groups based on the severity of their disease.

गुरुव्याधित लघुव्याधित - We perceive only what we seek, and we seek only what we understand.

गुरुव्याधित - (Severely afflicted): One who suffers from a serious disease but, due to possessing strong mental strength (*Sattva*), bodily strength (*Bala*), and good health, appears as if he has only a mild illness.

लघुव्याधित - (Mildly afflicted): Another person who has only a mild disease but, due to weak mental strength (*Sattva*), low vitality, and poor health, appears as if he is suffering from a severe illness.

Those who are unskilled (*Akushala Chikitsak*), relying only on their vision, judge the severity of the disease based on outward appearance and thus get confused in determining the true nature of the disease [14].

न हि ज्ञानावयवेन कृत्स्ने ज्ञेये विज्ञानमुत्पद्यते

विप्रतिपन्नास्तु खलु रोगज्ञाने उपक्रमयुक्तिज्ञाने चापि विप्रतिपद्यन्ते |  
च.वि.7.4

Partial knowledge does not provide a complete understanding of a condition. Without accurate knowledge of the disease, errors may arise in determining the appropriate line of treatment.

For example,

लघुव्याधित → मत्वा अल्पदोषम् → संशोधन काले → मृदु औषध  
→ भूय दोषान् उदीरयन्ति

If a physician misjudges a patient with a severe illness (*Guru Vyadhita*) as having a

mild ailment (*Laghu Vyadhita*), they may administer *Mrudu Samshodhana* (gentle purification), which can inadvertently worsen the condition by aggravating the *Doshas* and leading to disease progression (*Dosha Udeerana*).

गुरुव्याधित → मत्वा महादोषम् → संशोधन काले → तीक्ष्ण  
औषध → दोषान् अति निर्हत्य शरीरमस्य क्षिण्वन्ति

Likewise, if a physician misdiagnoses a patient with mild disease (*Laghu Vyadhita*) as a severe one (*Guru Vyadhita*), they may prescribe *Teekshna Shodhana* (Intensive purification), which can result in excessive depletion of body tissues and overall deterioration of health (*Shareera Kshaya*) [15].

Physicians who conduct a thorough patient examination and accurately diagnose the disease rarely make errors in distinguishing *Guru Vyadhita* from *Laghu Vyadhita*, ensuring effective treatment and successful recovery.

*Roga Bhishagjitiya Vimanam* (ch. Vi. Chapter 8)

In the seventh chapter, we explored how diagnostic errors can occur, leading to incorrect prescriptions and inappropriate treatment choices. The eighth chapter provides the solution to this challenge, as described by *Acharya Charaka*. It highlights the importance of a systematic diagnostic approach, ensuring accuracy in disease assessment and treatment planning. By

following the principles outlined in this chapter, a physician can minimize errors, refine their clinical judgment, and make well-informed therapeutic decisions, ultimately enhancing patient care and treatment outcomes. This chapter gives insight into how to assess patients before treatment, during treatment, and how to evaluate your prescription is given very briefly with *Dashavidha Parikshya Bhava* (Ten-Fold Examination Before Treatment).

ऐतद्दशविधमग्रे परीक्ष्यं, ततोऽनन्तरं कार्यार्था प्रवृत्तिरिष्टा|  
च.वि.8. 79

These ten factors should be assessed first before proceeding with treatment. A physician intending to initiate treatment must thoroughly assess the situation using appropriate methods before taking action [16].

The *Dashavidha Parikshya Bhava* (Ten-Fold Examination) in Ayurveda serves as a comprehensive diagnostic framework, ensuring that treatments are individualized and suitable for each patient. By adhering to these principles, unnecessary prescriptions and potential adverse reactions can be minimized [17, 18].

*Dashavidha Parikshya Bhava*: Ten-fold Examination Before Treatment:

1. *Karan* (Cause) – Diagnosis begins with identifying the root cause of the disease, ensuring that treatment targets the underlying *Dosha*

imbalance rather than merely suppressing symptoms. This prevents the prescription cascades often seen in modern medicine.

2. *Karana* (Therapeutic Means) – The tools or medications used in treatment. Ayurveda employs both medicinal and non-medicinal interventions, including diet, lifestyle modifications, and *Panchakarma*. Ayurveda emphasizes detoxification (*Shodhana*) to address root imbalances and reduce medication dependence.
3. *Karya Yoni* (Imbalance of Dhatus) – Understanding which *Dhatu* (tissue) is affected allows for precise treatment customization. Ayurveda restores *Dhatu* integrity, preventing the excessive layering of medications common in conventional medicine.
4. *Karya* (Restoration of Dhatus) – The primary goal of treatment should be to restore balance in affected *Dhatus* (*Dhatu Samya Kriya*), preventing disease progression and recurrence. This approach minimizes the risks associated with polypharmacy and systemic imbalances.
5. *Karya Phala* (Desired Outcome) – Clearly defining treatment goals ensures effective disease

- management without unnecessary interventions. Ayurveda continuously evaluates patient response, adjusting therapy to avoid over-medication and adverse effects.
6. *Anubandha* (Longevity & Vitality) – Treatment is designed not only to resolve disease but also to enhance overall health and vitality, avoiding long-term deterioration often caused by chronic drug use.
  7. *Desha* (Geographical & Environmental Considerations) – The patient's habitat, climate, and socio-economic conditions influence treatment efficacy. Unlike modern medicine's generalized approach, Ayurveda tailors therapies to environmental factors, ensuring better adaptability and effectiveness.
  8. *Kala* (Seasonal & Disease Stage Considerations) – The timing of treatment is crucial, as seasonal variations affect *Dosha* balance and disease progression. Ayurveda adopts therapy dynamically.
  9. *Pravriti* (Nature of Therapy Initiated) – Treatment begins with a careful selection of internal medicines, external applications, or required *Panchakarma* procedures. Ayurveda follows a phased approach, preventing the abrupt

introduction of multiple medications and reducing drug burden.

10. *Upaya* (Strategic Therapeutic Planning) – The therapeutic approach, whether nourishing, cleansing, or pacifying is customized to the patient's constitution and disease condition. Unlike modern medicine, which often leads to over-prescription, Ayurveda ensures precise, patient-specific treatment, preventing unnecessary pharmacological interventions.

This detailed framework accentuates the importance of individualized treatment and helps avoid over-prescription, thus preventing cascading health problems and polypharmacy.

*Bheshaja Bhooyastvam* - Ayurvedic View on Polypharmacy:

तेन यदि दुर्बले महादोषः, स च भूरिमात्रभेषजसाध्यस्तथाऽपि तदात्वव्यापत्तिभयान्न सहसा भेषजभूयस्त्वं कर्तव्यं, किन्तूत्तरोत्तरमभ्यासवशाद्बलमपेक्ष्य भेषजभूयस्त्वं कर्तव्यमिति दर्शयति। च.वि. 8.94 चक्र

Ayurveda has long recognized the dangers of excessive medicinal use, a practice it terms *Bheshaja Bhooyastvam*, which translates to “the overuse of medicines.” Ayurveda advises against the use of multiple drugs simultaneously unless necessary. Instead, treatment should be stepwise, increasing in intensity only as the patient's strength and disease severity require. If the

doshas are severe and only treatable by a large number of medicines, then too, due to the fear of complications, polypharmacy should be avoided. Instead, treatment should be stepwise, considering the patient's strength. [19] This is similar to the modern approach of deprescribing and carefully managing drug interactions, ensuring that the patient's overall health is not compromised by excessive or inappropriate medications.

### **The Ayurvedic Approach to Deprescribing:**

In modern medicine, deprescribing is gaining attention as a way to reduce polypharmacy and its negative effects. Ayurveda has long advocated for a similar approach through *Shuddha Chikitsa* and personalized treatment. Ayurvedic practitioners focus on understanding the root cause of disease, thereby prescribing only the necessary medicines, while continuously evaluating and adjusting treatment as the patient progresses.

For example, in the case of a digestive disorder caused by improper medication use, instead of prescribing another medication to suppress symptoms, Ayurveda would recommend detoxification procedures like *Vamana* (Therapeutic emesis) or *Virechana* (Therapeutic purgation) to cleanse the body of toxins as per condition, followed by dietary and lifestyle modifications to restore balance.

This reduces the need for additional drugs and their side effects, aligning with the principle of deprescribing in modern healthcare.

### **CONCLUSION**

Prescription cascades and polypharmacy are significant challenges in modern healthcare, particularly for elderly patients and those with multiple comorbidities. The phenomenon of prescription cascades significantly contributes to polypharmacy, increasing the risk of adverse drug reactions and unnecessary drug dependence. While modern medicine addresses this through deprescribing strategies, Ayurveda offers a preventive and holistic approach by focusing on the root cause of diseases rather than symptomatic treatment.

Ayurveda emphasizes *Nidana Parivarjana* (eliminating the causative factor) and advocates *Shuddha Chikitsa* (pure treatment), ensuring that therapeutic interventions address the root imbalance without creating further complications. The concept of *Guru Vyadhita* and *Laghu Vyadhita* plays a crucial role in determining the ideal treatment approach. Misjudging severity can lead to either disease aggravation (*Dosha Udeerana*) or excessive tissue depletion (*Shareera Kshaya*). Proper evaluation ensures precise treatment selection, preventing complications and optimizing patient recovery. The principles of *Dasha Vidha Parikshya Bhava* (Tenfold

patient assessment) guide the physician in selecting appropriate treatments based on an individual's *Prakriti* (Constitution), *Vikriti* (Disease state), and other factors, ensuring personalized and precise management. Further, *Bheshaja Bhooyastvam* - The dominance of medicines, highlights the importance of selecting optimal and minimal medications that work in synergy with the body rather than overburdening it. By integrating these Ayurvedic principles into clinical practice, the risks associated with prescription cascades can be minimized, paving the way for a more sustainable, patient-centered, and holistic healthcare system.

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