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AN INTEGRATIVE APPROACH TO THE MANAGEMENT OF INDIGESTION (AJEERNA) UTILIZING JEERAKA (CUMINUM CYMINUM) AND PASHCHIMOTTANASANA

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ABSTRACT

Background: Indigestion is characterized in modern medicine by upper abdominal discomfort, postprandial fullness, and early satiation, whereas classical Ayurveda defines it as Ajeerna—the state of incomplete food digestion caused by an impaired metabolic fire (Agnimandya) that leads to the accumulation of metabolic toxins (Ama), considered the root cause of systemic disease in Ayurveda. Therapeutic intervention necessitates Deepana (appetizing) and Pachana (digestive) agents are used to restore Agni and eliminate Ama (endotoxins). This study evaluated the synergistic efficacy of Jeeraka (Cuminum cyminum) and Pashchimottanasana in resolving Ajeerna.

KEYWORDS: Ajeerna; Agnimandya; Jeeraka; Cuminum cyminum; Pashchimottanasana; Deepana-Pachana; Apana Vayu; Integrative Medicine.

INTRODUCTION

According to Ayurveda, the majority of metabolic and systemic disorders originate from a deranged state of *Agni* (digestive and metabolic fire). *Agnimandya* (hypofunction of *Agni*) leads to *Ajeerna* (indigestion), characterized by the incomplete digestion of food and subsequent formation of *Ama* (metabolic endotoxins). Chronic accumulation of *Ama* results in *Srotorodha* (channel obstruction), predisposing the individual to inflammatory and autoimmune conditions.

Classical management protocols for *Ajeerna* are centered on the principle of **Deepana-Pachana**. *Deepana dravyas* rekindle *Agni* without digesting *Ama*, while *Pachana dravyas* digest *Ama* without significantly stimulating *Agni*.

***Jeeraka* (Cuminum cyminum Linn.):** Jeerak has *Deepana* and *Pachana* properties. Its attributes of *Laghu* (light) and *Ruksha* (dry) *Guṇa*, *Ushna Vīrya* (hot potency), and *Katu Vipāka* (pungent post-digestive effect) make it uniquely suited to pacify the vitiated *Vāta* and *Kapha Doṣas* that dominate *Ajeerna*. The primary active constituent, cuminaldehyde, is known to stimulate digestive enzymes and reduce flatulence, supporting the classical claims of *Vatanulomana* (downward regulation of *Vata*).

***Pashchimottanasana*:** This specific *Yogasana* is described in *Haṭha Yoga Pradīpikā* for its efficacy in kindling *Jatharāgni* and slimming the abdomen. Physiologically, the intense forward bend compresses the abdominal viscera, providing a restorative massage that stimulates intestinal peristalsis and aids in the downward movement of *Apāna Vāyu*. This asana not only addresses the physical motility dysfunction but also calms the nervous system, addressing the psychosomatic component often observed in *Ajeerna*.

This study hypothesizes that the integrated action—*Jeeraka* addressing the biochemical *Agni* deficit and *Pashchimottanasana* correcting the mechanical *Vāyu* dynamics—provides a superior, holistic therapeutic outcome. A dedicated research on this specific integrative protocol in *Ajeerna* is scarce, making it necessary for this clinical validation.

AIM AND OBJECTIVES

Aim

To evaluate the combined therapeutic role of *Jeerak* and *Pashchimottanasana* practice in the management of *Ajeerna* (indigestion).

Objective

1. To study the pharmacognostical properties and clinical benefits of *Jeerak* in *Ajeerna*.
2. To review the classical textual descriptions and neurophysiological aspects of *Pashchimottanasana*.
3. To analyze the combined clinical impact of these interventions on classical signs and symptoms of *Ajeerna* (*Aruchi, Udarashoola, Udaragaurava, Hrillasa*, and bowel irregularities).
4. To validate the Ayurvedic concepts of *Deepana-Pachana* using modern empirical evidence.

RESEARCH QUESTION

Does the integrated therapeutic protocol of *Jeeraka* (*Cuminum cyminum*) administration and regular *Pashchimottanasana* practice provide a statistically significant improvement in clinical symptoms and digestive function among patients diagnosed with *Ajeerna* (indigestion)?

HYPOTHESIS

Null Hypothesis (H0)

Jeerak and Pashchimottanasana practice has no significant effect on ajeerna.

Alternate Hypothesis (H1)

Jeerak and Pashchimottanasana practice has a significant effect on ajeerna.

MATERIAL AND METHODS

Sources of Data

- **Literature Source:** Ayurvedic classics, modern literature, research journals, and published articles regarding *Ajeerna*, *Jeeraka*, and *Pashchimottanasana*.
- **Clinical Source:** Patients from the OPD of the Department of Swasthavritta and Yoga, Uttaranchal Ayurvedic College, Dehradun.
- **Experimental Source:** Human clinical study; no animal experimentation was conducted.
- **Type of trial:** Interventional
- **Study Design:** Open-label, single-arm clinical study
- **Health type:** Patients suffering from Ajeerna (Indigestion)
- **Purpose:** To evaluate the combined therapeutic efficacy of Jeeraka (Cuminum cyminum) and Pashchimottanasana in the management of Ajeerna.
- **Timing:** 60 days
- **Masking/Blinding:** Open-labelled
- **No. of groups:** Single-arm study
- **Sample Size:** 100 enrolled patients
- **Phase of trial:** Not specified
- **Estimated total duration of trial:** Not specified
- **Statistical tool:** ANOVA and univariate analysis

Interventions

- **Jeeraka** (Drug): Roasted seeds of *Cuminum cyminum* Linn. Dose: 1g roasted seeds twice daily before breakfast and dinner with lukewarm water.
- **Pashchimottanasana** (Yogic Intervention): Supervised twice daily practice with holding time up to 1 minute.

Selection of Patients

A total of 100 patients diagnosed with Ajeerna (Indigestion) and fulfilling the inclusion and exclusion criteria were enrolled from the OPD of the Department of Swasthavritta and Yoga.

Inclusion Criteria

- Age: 18 to 50 years.
- Patients presenting with cardinal lakshanas of Ajeerna.

Exclusion Criteria

- Organic gastrointestinal pathology (e.g., Peptic Ulcer Disease, GERD).
- History of major abdominal surgery.
- Users of tobacco, smoking, or alcohol.
- Patients with severe addiction.

Method of Preparation

The *Jeeraka* was self-prepared by the investigator.

Method of Intervention

- **Poorva Karma (Preparation):** Patient education on the procedure, explanation of the asana, and comfortable positioning.
- **Pradhana Karma (Intervention):** Instructions for *Jeeraka* consumption and *Pashchimottanasana* practice.
- **Pashchata Karma (Post-procedure):** Observation for immediate effects and dietary instructions.

2. **Follow-up:** Conducted on the 15th, 30th, 45th, and 60th days.
3. ***Jeeraka* (Drug):** Roasted seeds of *Cuminum cyminum* Linn.

- **Dose:** 1 g of roasted seeds.
- **Frequency:** Twice daily (before breakfast and dinner).
- **Anupana (Vehicle):** Lukewarm water.
- **Procedure:** Patients were instructed to thoroughly chew the seeds before swallowing to facilitate the release of volatile oils and enhance the *Deepana* effect.
- **Duration:** 60 days.

4. ***Pashchimottanasana* (Yogic Intervention)**

- **Practice:** Supervised practice was taught and demonstrated in the OPD.
- **Frequency:** Twice daily.
- **Holding Time:** Gradually increased from 20 seconds up to 1 minute per repetition.

The primary outcome was the change in severity of five cardinal symptoms of *Ajeerna*

- *Vishtambha* (Constipation)
- *Trishna* (Excessive thirst)
- *Chardi* (Nausea)
- *Arochaka* (Anorexia)
- *Avipaka* (Indigestion)

Severity was quantified using a standardized **0–3 ordinal scale** (0=No symptom, 3=Severe symptom). Longitudinal assessments were performed on Day 1, 15, 30, 45, and 60. Data analysis utilized the Paired T-test for pre- and post-treatment comparison and One-way Analysis of Variance (ANOVA) for correlation of categorical variables. A **p-value of <0.05** was considered statistically significant.

Assessment Criteria

- **Subjective Parameters:** *Vishtambha*, *Trishna*, *Chardi*, *Arochaka*, *Avipaka*.
- **Objective Parameters:** Standardized severity scales for cardinal symptoms.

Outcomes

- **Primary:** Reduction in sign and symptoms of Ajeerna (Indigestion).
- **Secondary:** Improvement in quality of life of patient.

Sample Size

The sample size was determined using the Yamane Taro formula, for calculating the necessary sample size within a finite population. Although 100 patients were initially enrolled to accommodate potential attrition, the final statistical analysis was based on 50 participants who strictly met all inclusion criteria and completed the full 60-day treatment duration. This ensures the reliability and validity of the clinical findings.

Yamane Taro formula i.e. n = N/1+N(e)^2.

n = the sample size

N = the population of the study i.e. 100

e = the margin error in the calculation i.e. 0.1

n=100/1+100(0.01) = 50

Ethical Clearance & CTRI Registration

The study was registered with the Clinical Trials Registry of India (CTRI) with CTRI NO. CTRI/2025/10/096711

OBSERVATIONS AND RESULTS

The observation and results will be analyzed and presented in accordance with the respective and applicable statistical tests.

DISCUSSION

The obtained results will be discussed on the basis of Ayurvedic concept and modern parameters.

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