



## SMRITI BHRANSHA (COGNITIVE DECLINE) IN NEURODEGENERATIVE DISEASE: AN INTEGRATIVE ANALYSIS OF AGING, VATA PRAKOPA, AND OJAS DEPLETION

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### ABSTRACT

This integrative review explores the Ayurvedic perspective on Smriti Bhransha (cognitive decline), positioning it not merely as a neurological deficit but as a systemic interaction involving the mind, soul, and intellect. While classical texts do not classify memory loss as an independent disease, it is recognized as a cardinal symptom in conditions associated with Jara (senility) and Unmada (psychosis). The paper establishes a pathological triad comprising natural aging, Vata Prakopa (aggravation), and the depletion of Ojas (vital essence) as the primary drivers of neurodegeneration. Physiologically, memory retention and recall rely on the coordination of Prana and Udana Vata, supported by Tarpaka Kapha. Pathologically, the aging process naturally elevates Vata, introducing qualities of dryness (Ruksha) and roughness (Khara) to the central nervous system. This aggravation leads to Majja Dhatu Kshaya (depletion of neural tissue), a concept paralleling modern observations of cerebral atrophy, ventricular enlargement, and demyelination. Furthermore, the decline of Ojas destabilizes the mind, resulting in the inability to retain new information. The study outlines a progressive four-stage model from early Vata accumulation to severe dementia and systemic failure. Conclusively, management strategies must shift toward holistic nourishment, utilizing Vata-pacifying therapies such as Snehana and Nasya, alongside Medhya Rasayana to restore Ojas and synaptic stability.

**KEYWORDS :** Aging, Neurodegeneration, Ojas Depletion, Smriti Bhransha, Vata Prakopa

### INTRODUCTION

Smriti (memory) is essential for continuity of self-living. In Ayurved, memory not only considered neurological function but a combination of mind (Manas), Soul (Atma) and Intellect (Budhi).<sup>1</sup> Acharya Charaka defines smriti (memory) as collection and preservation of information which depends on healthy body-mind correlation and balanced doshas.

Classical texts do not mention 'Smriti bransha' (memory loss) as a separate concept rather it is described as cardinal symptom in conditions like Unmada (psychosis), Apsmara (epilepsy) and Jara (senility).<sup>2</sup> In Geriatric population neurodegenerative disorders have pathological relation of natural aging. Modern neuroscience describes oxidative stress, inflammatory condition and mitochondrial dysfunction as a cause of neurological cells.<sup>3</sup>

Vata dosh which governs the movements and catabolic processes also as primary element to govern nervous system signifies the integrated correlation between contemporary and traditional aspects.<sup>4</sup> This review paper explains the triad Jara-Vata prakopa and Ojakshaya as basis of pathogenesis (samprapti) of neurodegeneration.

### The Physiological Aspect of Smriti (Memory)

Physiological view make easier to understand pathology. Formation and regaining memory involves:

1. Prana Vayu- Responsible for sensory information.<sup>5</sup>
2. Sadhaka pitta- It is located in heart and brain; it helps by conversion of sensory inputs to knowledge (Budhi).<sup>6</sup>
3. Tarpaka kapha -It nourishes brain tissues and act as a base to store memories.<sup>7</sup>
4. Udana Vata - It help to recall the perceived memory.<sup>8</sup>

When vitiated dosha obstructs tissue channels (srotowarodh) or Rajas (Passion) and Tamas (inertia) guna of manas (mind) envelopes satva (clarity), this leads to smriti bhransha (memory loss).<sup>9</sup>

### Jara (Aging) and Vata Aggravation - The Catabolic Cascade

Geriatric age i.e. post 60 years Vata is a ruling dosha in human body. Geriatric diseases (Jarajanyavikara) naturally occurring diseases.

### Nature of Vata in Brain

Ruksha (dry), Laghu (light), Khara (rough) and Shita (cold) are the qualities (guna) of Vata dosha. As Vata is responsible for movement in Central Nervous System (CNS), vata regulate signal transmission and ability of reorganization.<sup>10</sup> However, with advancing age Vata increases naturally. If this naturally increasing Vata is worsened by factors like irregular sleep, stress and Vata aggravating diet it leads to Vata prakopa i.e. pathological increase targeting Majja dhatu (bone marrow and neural tissues).<sup>11</sup>

### Majja Dhatukshaya

Majja dhatu correlated to bone marrow has property of unctuousness (snigdha) and it fills bone cavities. Pathological aggravation of Vata specifically increase in Ruksha (dry) and khara (rough) guna leads to desiccation (shosh) of Majja dhatu.<sup>12</sup>

This concept can be associated to cerebral atrophy seen in patients of dementia where there is decrease in brain volume, enlarged ventricles and loss of synaptic density. The 'dryness' of aggravated Vata shows functional similarity to loss of

myelin sheath and dehydration of cellular matrix in brain.<sup>13</sup>

**Gas Concept of Ojas - Vitality us Neurodegeneration**

Ojas - essence of all seven dhatu is most critical but overlooked aspect, responsible for cognitive decline.

Synaptic loss - Ojas provides 'shritatva' (stability) to memory retention. Depleted Ojas causes instability of mind leading to decreased ability to perceive new information know as short term memory loss.<sup>14</sup>

**DISCUSSION**

By summarizing above concepts, neurodegenerative pathological cascade can be understood as follows :

Sr. No.	Stage	Samprapti (Pathogenesis)	Modern Pathophysiology
1.	Early Stage	Accumulation of Vata cause slightly increased Ruksha guna (dryness)	Mild oxidative stress with decreased synaptic plasticity .
2.	Stage of Impairment	Aggravation of Vata – vitiated prana and udana Vata .	Imbalances in neurotransmission, early hippocampal atrophy.
3.	Stage of Dementia	Depleted bone marrow (Majja dhatu kshaya) causes structural damage to neural tissue	Cerebral atrophy, plaque formation, demyelination.
4.	Severe Dementia	Oja depletion causing loss of vital essence and stability of mind, loss of consciousness	Systemic failure, loss of autonomic control, cognitive decline.

**Prana - Udana Axis**

Proper co-ordination between Prana Vata responsible for memory retention and Udana Vata - helps to recall previous perceived information leading to preservation of memory. The patient may store information but unable to access it because of increased dryness of vitiated Vata leading to rigidity of neurogenic channels.<sup>15</sup> This signifies, modern concept of 'tip-of-the-tongue' phenomenon and aphasia commonly seen in patients of dementia.

**Therapeutic Management (Chikitsa Sutra)**

Opposing qualities of causative factors helps in management of smriti bhransha (memory loss).

**1. Vata Shamana (Pacification)** - Use Heavy (Gury), unctuous (Snigdha) Hot (ushna) therapies.<sup>16</sup>

- a. Snehana (oleation) - use of medicated ghee to overcome the the dryness in brain tissue.<sup>17</sup>
- b. Nasya (Nasal administration)- Nose is a door to head. Use of lipid-based medication reaches Majja and provide nourishment to bone marrow.<sup>18</sup>

**2. Oja Vardhana (Enhancing Ojas)** - by use of Rasayana therapy (Rejuvenation).

Use of immunomodulatory drugs to reduce oxidative stress and inflammation in nervous tissue and preservation of Ojas, Medhya rasayana (Nootropics) to improve intellect and retention ability.<sup>19</sup>

**CONCLUSION**

Smriti bhransha or cognitive decline is not only a neural inability but a systemic failure of vital organ in body. It is cumulative effect of Jara (aging), naturally occurring Vata aggravation leading to increased catabolic activities which caused depletion of Majja dhatu (bone Marrow and neural tissue) eventually decreases Ojas.

Understanding triad of Aging-Vata prakopa and Oja depletion-gives holistic approach for treatment. Shifting focus from only clearing protein plaques to nourishment and stabilization of Majja and Ojas.

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