

2.0 LITERARY RESEARCH FROM ANCIENT SCRIPTURES

TITLE: AN EVIDENCE BASED CRITICAL REVIEW OF KAPHAJA KĀSA (CHRONIC BRONCHITIS) ACCORDING TO VARIOUS ĀYURVEDIC SAMĪHITĀS

ABSTRACT

Āyurvedic texts have described ‘*Kāsa*’ as an independent *Vyādhi* and a symptom of various debilitating diseases with its separate types, signs, symptoms, pathogenesis and treatment. If treatment of *Kāsa Vyādhi* is not done in time it can give rise to critical conditions like *Śvāsa*, *Rājayakṣmā*, *Uraḷkṣata*, *Rakttapitta*, *Granthi*, *Arbuda* of respiratory tract etc. So to avoid the above complications it is essential to prevent and manage *Kāsa Vyādhi*. *Kāsa* is of five types; *Vātaja*, *Pittaja*, *Kaphaja*, *Kṣayaja* and *Kṣataja*. Among all, *Kaphaja Kāsa* is prevalent in these days originated due to the exposure to active and passive smoking, air pollution, occupational hazards. *Kaphaja Kāsa* is a disease described in *Āyurvedic* texts that shows close resemblance with chronic bronchitis on the basis of clinical manifestations. However, according to WHO chronic bronchitis and emphysema are now included within the chronic obstructive pulmonary disease, a major cause of health care burden worldwide and the only leading cause of death among respiratory diseases that is increasing in prevalence. So in this article, critical analysis was done on the *Āyurvedic* management of *Kaphaja Kāsa* vis-à-vis chronic bronchitis.

2.1 INTRODUCTION

In *Āyurveda*, *Kāsa* is explained as an independent *Vyādhi* and a symptom of various debilitating diseases with its separate types, signs, symptoms, pathogenesis and treatment. It involves most of the presentations of respiratory tract diseases where aggravated *Kapha* obstructs the free flow of *Prāṇavāyu* in *Prānavaha Srotas*, *Kaṇṭha* and *Uraḥ* (Sharma & Dash, 2005, p. 178). *Āyurvedic* texts have described *Kapha* as the major cause in production of *Kāsa* which creates *Mārgāvarodha* (blockage of respiratory passage) (Murthy, 2003, p.176). According to *Astāṅga Hṛdaya Nidāna Sthāna (3/17b-18a)* *Kāsa* is classified into five categories as follows: *Vātaja*, *Pittaja*, *Kaphaja*, *Kṣayaaja* and *Kṣataja*. Among these 5 types of *Kāsa*, *Kaphaja Kāsa* has become more prevalent in these days because of the exposure to dust, smoke, fumes, both active and passive smoking, industrial gases, air pollution, and occupational hazards, cold places, drinking cold water (Sharma, 2008).

The signs and symptoms of *Kaphaja Kāsa* simulates with that of Chronic bronchitis (CB) in modern. Respiratory system is more susceptible to infections among all biological systems as it is in continuous contact with the outside surroundings since birth until one's life time (Atkins & Leung, 2008). Chronic respiratory diseases are defined as chronic diseases of the respiratory tract and other structures of the lungs. CB is most common among respiratory diseases, often a main component of chronic obstructive pulmonary disease (COPD), which also includes emphysema and asthma. It is clinically defined as a chronic inflammation of the bronchi and bronchioles that leads to daily productive cough for at least three months per year, two successive years (Vijayan, 2013). This respiratory condition results in excessive secretions of mucus and tissue swelling that reduces the diameter of the bronchial tubes, making it gradually more difficult to breathe. This leads to cough and difficulty getting air in and out of the lungs. The hallmark of COPD is chronic airflow limitation that is progressive, poorly reversible and has a systemic impact and a progressive evolution.

COPD is major cause of health care burden and the leading cause of death among respiratory diseases. The World Health Organization estimates that COPD will be the third most common cause of death and disability by 2030, from its current fifth ranking (WHO, 2011). In India, COPD is the second most common lung disorder after pulmonary tuberculosis (Sharma, 2008). Consistent evidence from population studies report that 10-15% of the total burden of COPD is associated with workplace exposures such as vapours, gases, dusts and fumes (Fishwick et al., 2015). The prevalence of COPD draws an attention for proper diagnosis and management of the disease. This study is an effort to critically review the *Nidāna*, *Samprāpti*, *Lakṣaṇas* and *Cikitsā* of *Kaphaja Kāsa* as described in classical *Āyurvedic* texts compared with CB which may pave a way to overcome this situation with effective *Āyurvedic* management.

2.2 AIM AND OBJECTIVES

To study conceptually the etiopathogenesis and management of *Kaphaja Kāsa* vis-à-vis CB by critically reviewing the ancient *Āyurvedic* texts.

2.3 MATERIALS AND METHODS

This study was done by thoroughly reviewing the English translated versions of classical *Āyurvedic* literature; *Caraka Samhitā*, *Suśruta Samhitā*, *Mādhava Nidāna*, *Aṣṭāṅga Hṛdaya*, *Aṣṭāṅga Saṅgraha*, *Sārṅgadhara Samhitā*, *Bhāvaprakāśa Nighantu*, *Madanapāla Nighantu*, *Bhelasamhitā*, *Yogaratanākara*, *Kāśyapa Samhitā*, *Rasaratnasamucyaya*, *Cakradatta*, *Vaṅgasen Samhitā*, *Vrindavaidyaka*, *Rasendra Sāra Saṅgraha*, *Bhaiṣajya Ratnāvalī*, *Kāya Cikitsā*, *Rasa Śāstra*, magazines and research journals on *Āyurveda*, as well as pubmed, medline database. Based on the collected information logical interpretation was done to review different treatment strategies in the management of *Kaphaja Kāsa*.

2.4 DEFINITION OF KĀSA ROGA IN AYURVEDA

Kaphaja Kāsa comprises of two words “*Kapha*” and “*Kāsa*”. According to *Śabda Kalpa Drūma* by *Radhākānt Deva* the word “*Kapha*” is derived from the root “*Ke*”, meaning “*Śirasi Kena Jalena vā Palathi*”, that which is produced in the *Śiraḥ* (head) and nourished by *Jala* (water). *Āchārya Caraka* has defined *Kāsa* as “*Śuṣko vā sā Kaplo vā api Kāsanāt Kāsaḥ*” because it involves the movement of *Vāyu* giving rise to coughing which may be dry or with phlegm vide the root “*Kās*” which implies to move or to afflict (Acharya, 2011, p. 433).

2.5 TYPES OF KĀSA

वातादिजास्त्रयो ये च क्षतजः क्षयजस्तथा ।

पञ्चैते स्युर्नृणां कासा वर्धमानाः क्षयप्रदाः ॥ च चि १८/४ ॥

Vātādi jāstrayo ye ca kṣatajaḥ kṣayajastathā |

Pañcaite syurnṛṇāṁ kāsā vardhamānāḥ kṣayapradāḥ | | Ca. Ci. 18/4 | |

There are five varieties of *Kāsa* (bronchitis). If exacerbated, they may cause cachexia. These varieties are as follows:

1. *Vātika Kāsa* (bronchitis caused by *Vāyu*)
2. *Paittika Kāsa* (bronchitis caused by *Pitta*)
3. *Kaphaja Kāsa* (bronchitis caused by *Kapha*)
4. *Kṣataja Kāsa* (bronchitis caused by injury to the chest or phthisis); and
5. *Kṣayaja Kāsa* (bronchitis caused by the diminution of tissue elements, i.e. consumption or tubercular bronchitis).

2.6 PREMONITORY SIGNS AND SYMPTOMS OF KĀSA

पूर्वरूपं भवेत्तेषां शुकपूर्णगलास्यता ।

कण्ठे कण्डुश्च भोज्यानामवरोधश्च जायते ॥ च चि १८/५ ॥

Pūrvarūpani bhavetteṣāṃ śukapūrṇagalāsyatā ।

Kaṇṭhe kaṇḍuśca bhojyānānavarodhaśca jāyate ॥ Ca. Ci. 18/5 ॥

The following are the premonitory signs and symptoms of *Kāsa* (bronchitis):

1. A sensation as if the throat and mouth are filled with bristles (a feeling of congestion in the throat);
2. Itching sensation in the throat; and
3. Obstruction to the movement of food in the gullet.

प्रतिघातविशेषेण तस्य वायोः सरंहसः ।

वेदनाशब्दवैशिष्ट्यं कासानामुपजायते ॥ च चि १८/९ ॥

Pratighātaviśeṣeṇa tasya vāyoḥ saraiḥsaḥ ।

Vedanāśabdavaiśiṣṭyaṃ kāśānāmupajāyate ॥ Ca. Ci. 18/9 ॥

Specific variations in the pain and sound associated with different types of *Kāsa* are caused by the specific nature of the obstruction (by *Kapha*, etc.,) to the forcefully moving *Vāyu*.

2.7 NIDĀNA/ETIOLOGY OF KAPHAJA KĀSA

गुर्वभिष्यन्दिमधुरस्निग्धस्वप्नाविचेष्टनैः ।

वृद्धः श्लेष्माऽनिलम् रूद्धवाकफकासं करोति हि ॥ च चि १८/१७ ॥

Gurvabhiṣyandimadhurasniḡdhasvapnāvicesṭanaiḥ |

Vṛddhaḥ śleṣmā'nilam rūdghavākaphakāsaṁ karoti hi | | Ca. Ci. 18/17 | |

The causative factors of *Kaphaja* type of *Kāsa* are as follows:

1. Intake of heavy, *Abhiṣyandi* (ingredients which cause obstruction to the channels of circulation), sweet and unctuous ingredients (in excess) and
2. Excessive sleep and indolence.

The *Kaphaja* gets aggravated because of the above mentioned regimens and obstructs the movements of *Vāyu* which gives rise to *Kaphaja* type of *Kāsa*.

2.8 PŪRVA RŪPA / PREMONITARY SYMPTOMS OF KAPHAJA KĀSA

According to *Caraka Saṁhitā* signs and symptoms of *Kaphaja Kāsa* are as follows

मन्दाग्नित्वारूचिच्छर्दिपीनसोत्क्लेशगौरवैः ।

लोमहर्षास्यमाधुर्यक्लेदसंसदनैर्युतम् ॥ च चि १८/१८ ॥

Mandāgnitvārūcicchardipīnasotkleśagauravaiḥ |

Lomaharṣāsyamādhuryakledasansadanairyutam | | Ca. Ci. 18/18 | |

बहुलं मधुरं स्निग्धं नोष्ठीवति धनं कफम् ।

कासमानो ह्यरूग् वक्षः संपूर्णमिव मन्यते ॥ च चि १८/१९ ॥

Bahulam madhuran snigdhani noṣṭhīvati dhanam kapham |

Kāsamāno hyarūg vakṣaḥ sampūrṇamiva manyate | | Ca. Ci. 18/19 | |

- *Mandāgni*- Suppression of the power of digestion

- *Arūci, Chardi* - Anorexia, vomiting
- *Pīnasa, Utkleśa, Gaurava*- Chronic rhinitis, nausea and feeling of heaviness in the body.
- *Lomahaṛṣa, Mādhurya*- Horripilation, sweetness and stickiness in the mouth
- *Kledasānsadana* - Frailty (abnormal physical weakness or lack of energy)
- *Bahulāni Madhuraiṇi Snigdhanī Noṣṭhīvati Ghanāni Kapham*- Spitting of bulky amount of thick phlegm in which is sweet in taste and unctuous
- *Vakṣa Sampūrṇa*- Feeling of fullness in the chest

Astāṅga Hṛdaya describes the following symptoms as *Rūpa* of *Kaphaja Kāsa*. *Kaphaja Kāsa* starts with rhinitis and then develop cough. There is copious expectoration with thick, sticky, mucoid, whitish, sweetish sputum produces on coughing. There may be mild pain in head and region of heart while coughing (Murthy, 2003, p. 226). According to *Suśruta Samhitā Uttara Sthāna* (52/7) irritation of throat, hindrance to swallowing, coating of throat and palate, slight disorders of voice, loss of taste, weakness of digestive fire.

2.9 SAMPRĀPTI GHĀTAKA/ PATHOGENESIS OF KAPHAJA KĀSA

अघःप्रतिहतो वायुरूर्ध्वस्रोतः समाश्रितः ।

उदानभावमापन्नः कण्ठे सक्तस्तथोरसि ॥च चि १८/६ ॥

Adhaḥpratihato vāyurūrdhvasrotaḥ samāśritaḥ |

Udānabhāvamāpannaḥ kaṅṭhe saktastathorasi | |Ca. Ci. 18/6| |

अविश्य शिरसः खानि सर्वाणि प्रतिपूरयन् ।

आभङ्गनाक्षिपन् देहं हनुमन्ये तथाऽक्षिणी ॥च चि १८/७ ॥

Aviśya śirasaḥ khāni sarvāṇi pratipūrayan |

Ābhañjannākṣīpan dehāni hanumānye tathā'kṣiṇī | | Ca. Ci. 18/7 | |

नेत्रे पृष्ठमूरःपार्श्वे निर्भूज्य स्तम्भयंस्ततः ।

शुष्को वा सकफो वाऽपि कसनात्कास उच्यते ॥ च चि १८/८ ॥

Netre pūṣṭhamūraḥpārśve nirbhūjya stambhayaniustataḥ |

Śuṣko vā sakapho vā'pi kasanātkāsa ucyate | | Ca. Ci. 18/8 | |

Being obstructed in the lower region of the body, *Vāyu* moves upwards, afflicts the channels of circulation in the upper part of the body, takes over the function of *Udāna* – *Vāyu* (i.e. the function of respiration), and gets lodged in the throat and the chest. This *Vāyu* enters (afflicts) and fills up all the channels (cavities) of the head to cause bending (*Ābhañjan* = breaking) and stretching (*Ākṣipāna*) of the body, jaws, sides of the neck (sterno-mastoid muscles) and eyes. Thereafter, *Vāyu* having caused contraction (*Nirbhujya*) and stiffness (*stambhana*) of the eyes, back, chest and sides of the chest, gives rise to coughing (*Kāsanāt*) which may be dry or with phelgm because of which it is called *Kāsa*.

Caraka Cikitsā Sthāna (18/5-6) described the pathogenesis of *Kaphaja Kāsa* as follows. *Kapha* and *Vāta* are the two key pathological factors involved in the *Samprāpti* of *Kaphaja Kāsa*.

2.10 KAPHA VARDHAKA ĀHARA AND VIHĀRA

According to *Suśruta Samhitā Sutra Sthāna* (19/32-33) *Kapha* is naturally and spontaneously aggravated in the morning and evening, in *Hemanta* and especially in *Vasanta* and just after a meal. The deranged *Kapha* is aggravated by sleep in the day time or by following of lazy and sedentary habits, eating before digestion. The partaking of food composed of substances which are heavy, slimy, sweet, acid or saline in their tastes, or of one consisting of substances which increase the mucous secretions for the fissure of the body. The use of food grains

Hayānaka, Yavaka, Naiṣada, Māṣa, Mahāmāṣa, Godhūma, Tilam or rice cakes may leads to its aggravation. Curd, milk, *Pāyasa, Kṛṣara* various preparation of cane sugar, the flesh of beasts and bird that are aquatic in their habits or live in marshy lands, *Kaśeruaka, Śringātaka, Madhuraphala, Vallīphala* have the same effect if used as food (Sharma, 2010, p. 211).

Because of the above mentioned *Āhāra* and *Vihāra* *Kapha* gets aggravated this result in *Agnimāndya*. Due to *Agnimāndya* - *Āmarasa* is formed which results in *Rasadhātu Duṣṭi*. *Rasadātu Duṣṭi* may lead to *Malarupī Kaphavṛdhi*, which causes *Srotosañga* in *Prāṇavaha* srotas, due to which *Vātāvarodha* occurs; this leads to *Vimārga Gamana* of *Vāta* resulting in occurrence of *Kaphaja Kāsa*. According to *Aṣṭāṅga Hṛdaya Nidāna Sthāna* (3/19b-22a), obstructed *Vāta* it needs downward movements being to move upwards, reaching the chest, invades the throat and feeling the channels of the head, makes for violent upward of the body, the eyes, back and chest, pain in the flanks and comes out of the mouth producing noise. According to difference in the causative *Doṣa* there is difference in the nature of obstruction of the forceful *Vāta*; hence there occurs differences in the symptoms and the sound of *Kapha*.

2.11 PATHOLOGICAL FACTOR INVOLVED IN KAPHAJA KĀSA

Table 2: Description of pathological factors

<i>Doṣa</i>	<i>Kapha and Vāta</i>
<i>Duṣya</i>	<i>Rasa</i>
<i>Agni</i>	<i>Jatharāgni, Rasadhātvāgni</i>
<i>Āma</i>	<i>Manda Jatharāgnijanya and Mandarasa Dhātvagnijanya</i>
<i>Srotas</i>	<i>Prāṇavahasrotas, Annavahasrotas, Udakavahasrotas</i>

<i>Srotoduṣṭi Prakāra</i>	<i>Sanga, Vimārgagamana, Atipravṛtti</i>
<i>Udbhava Sthāna</i>	<i>Amāshaya (Stomach/ Abdomen)</i>
<i>Sanchārasthana</i>	<i>Uraḥ, Kaṇṭha, Śiraḥ (Prāṇavahasrotas)</i>
<i>Adhishtāna</i>	<i>Uraḥ, Prāṇavahasrotas (Chest)</i>
<i>Vyaktasthāna</i>	<i>Uraḥ (Lungs)</i>
<i>Rogamārga</i>	<i>Ābhyantara</i>
<i>Vyādhi Svabhāva</i>	<i>Dāruṇa, Cirakāri (Chronic)</i>
<i>Sādhyāsādhyatā</i>	<i>Yāpya</i>

2.12 CIKITSĀ / MANAGEMENT OF KAPHAJA KĀSA

General management includes:

- Nidāna parivarjana* - Avoidance of causative factors.
- Lañghana* – The patient should take light food with the soup of *kullattha* mixed with the powder of *Pippalī* and alkalies (*Yava-Kṣāra*) or with the juice of *Mūlaka* or with the soup of the meat of animals inhabiting arid zone (*Dhānva-Cāri*) or burrows (*Bileśaya*) prepared by adding pungent drugs, or with the oil of sesame or mustard and *Bilva*.

He may drink honey (mixed with water), sour drinks, warm water, butter-milk, or harmless alcoholic drinks.

Puṣkara-Mūla, root of *Āragvadha* and *Paṭola* should be kept in water for the whole night. Next morning, the water should be strained out and added with honey. This should be taken before, during and after meals.

Caraka Saṁhitā Sūtra Sthāna (22/9) described “*Yat kinchit lāghava karam dehe tat lañghanam*”. Whichever *Pañchakarma* therapies/medicines/*Āhara/Vihāra* brings lightness

and thinness to the body is called *Lañghana*. In *Kaphaja Kāsa* there is heaviness and blocking of body channels due to increase in *Kapha Doṣa*. Hence *Lañghana* is adopted.

c) *Śodhana Cikitsā* –

बलिनं वमनैरादौ शोधितं कफकासिनम् ।

यवान्नेः कटूरूक्षोष्णैः कफघ्नैश्चाप्युपाचरेत् ॥ च चि १८/१०८ ॥

Balinani vamanairādaū śodhitani kaphakāsinam |

Yavānneiḥ kaṭūrūkṣoṣṇaiḥ kaphadhṇaiścāpyupācaret | | Ca. Ci. 18/108 | |

पिप्पलीक्षारिकैयूषैः कौलत्थैर्मूलकस्य च ।

लघुन्यन्नानि भूञ्जीत रसैर्वा कटूकान्वितैः ॥ च चि १८/१०९ ॥

Pippalikṣārikairyūṣaiḥ kaulatthairmūlakasya ca |

Laghunyanāni bhūñjīta rasairvā kaṭūkānvitaiḥ | | Ca. Ci. 18/109 | |

धान्वबैलरसैः स्नेहैस्तिलसर्षपबिल्वजैः ।

मध्वम्लोष्णाम्बुतक्रं वा मद्यं वा निगदं पिबेत् ॥ च चि १८/११० ॥

Dhānvabailarasaiḥ snehaisṭilasarpaḥpabilvājaiḥ |

Madhvamlouṣṇāmbutakraṇi vā madyaṇi vā nigadaṇi pibet | | Ca. Ci. 18/110 | |

पौष्करारग्वधं मूलं पटोलं तैर्निशास्थितम् ।

जलं मधुयुतं पेयं कालेष्वन्नस्य वा त्रिषु ॥ च चि १८/१११ ॥

Pauṣkarāragvadhaniḥ mūlani paṭolani tairniśāsthitam |

Jalani madhuyutani peyani kāleṣvannasya vā triṣu | | Ca. Ci. 18/111 | |

If the patient suffering from *Kaphaja Kāsa* is strong, then he should be given emetic therapy in the beginning. Thereafter, he should be given barely and such other *Kapha*- alleviating ingredients as are pungent, unctuous and hot in potency, to eat.

Elimination of excess *Doṣas* and waste materials accumulated in the body that causes disease by means of *Pañchakarma* therapy. Purification prescribed for *Kaphaja Kāsa* are *Vamana*, *Virechana*, *Anuvāsana Vasti*, *Śirovirechana* or *Nasya*.

i) For dry cough – *Snehana* and *Svedana*

ii) For wet cough – *Vamana*.

d) **Śamana Cikitsā** - It is done when there is accumulation of *Alpa Doṣa* (less waste materials) to pacify the condition. It includes various drugs that are administered to patients to bring down the deranged *Doṣas* i.e., *Chūrna*, *Avaleha*, *Dhūmapāna*, *Kwātha*.

According to *Aṣṭāṅga Hṛdaya Cikitsā Sthāna* (3/41-42), patients of *Kaphaja Kāsa* should lick the oil exuding out from a piece of wood *Surakāṣṭha* set on fire, mixed with power of *Vyoṣā* and *Yavakṣāra* in the beginning. After administering oleation therapy, purificatory therapies upper and lower (emesis and purgation) and of the head should be administered.

2.12.1 LAṄGHANA

It refers to intake of light food, prescribed to patient with *Kaphaja Kāsa* who is strong enough to sustain.

2.12.1.1 Diet for *Kaphaja Kāsa*

According to *Aṣṭāṅga Hṛdaya Cikitsā Sthāna* (3/41-44a), for the regimen of the diet, mess prepared from *Yava*, *Mudga*, *Kulattha*, hot and dry (non fatty) with predominance of pungent taste should be used. *Kāsamarda*, *Vartaka*, *Vyāghrī* mixed with *Yavakṣāra* and *Kaṇa* are to be used as vegetables; soup of meat of animals of desert lands and those living in burrows,

mixed with oils of either *Tila*, *Sarṣapa* or *Nimba* may be used. *Kapha* alleviating ingredients barley, pungent, unctuous and hot in potency foods are recommended to eat.

Caraka suggested to take light food with the soup of *Kulattha* mixed with the

- powder of *Pippalī* and alkalies (*Yava-kṣāra*) or
- juice of *Mūlaka* or
- soup of the meat of animals inhabiting arid zone (*Dhanva Cāri*) or
- burrows (*Bileśaya*) prepared by adding pungent drugs or
- oil of *Sesame*, *Mustard* and *Bilva*.

2.12.1.2 PATHYA AND APATHYA IN KAPHAJA KĀSA

Table 3: List of *pathya* and *apathya*

<i>Pathya</i> (Wholesome diet and lifestyle)	<i>Āhāra</i>	Foods that are light, warm, dry and rough Red rice (unpolished) <i>Mudga</i> , <i>Kulattha</i> , wheat, barley, goat milk, honey, dates fruit, patol, garlic, <i>Jambirā</i> lemon, <i>Mātulungā</i> lemon, cardamom, hot water.
	<i>Vihāra</i>	<i>Svedana</i> , hot water bath, <i>Ātapa sevana</i> , <i>Lavaṇa</i> , <i>Taila Abhyaṅga</i> , <i>Prāṇāyāma</i> , warm clothes in winter season.
<i>Apathya:</i> (Unwholesome diet and lifestyle)	<i>Āhāra</i>	Diet that are heavy, cool, oily and smooth Too cold, sour, heavy preparations, fishes, sheep milk, sour food and fruits, deep fried items, <i>Śītapānīya</i> [cool drinks], <i>Dadhi</i> , <i>Āmakṣīra</i> , bread, burger, pizza, cheese, paneer taking milk at bed time etc.
	<i>Vihāra</i>	<i>Vegadhāraṇa</i> , exposure to dust / coldwind / smoke / hot sun, hard exercise, pets, pollen, over eating, cold and damp places, fasting for a longer period, seating in smoky, frosty and congested places for a longer time etc.

2.12.2 Vamana:

Vamana means to induce vomiting. *Caraka Cikitsā Sthāna* (1/4) defines *Vamana* as “*Tatra doṣaharaṇam urddharobhāgam vamanam sañjñakam*”. It is a bio-cleansing technique intended for the removal of *Doṣa* (mainly *Kapha*) accumulated in the upper gastro intestinal tract (*Āmāsaya*). *Vamana* is a treatment of choice in *Kaphaja* disorders .

According *Caraka Cikitsā Sthāna* (18/108a) to If the patient is physically strong enough to sustain *Śodhana* therapy then *Vamana Karma* is recommended to them in the beginning. According to *Sārangadhara* (1/84) *Vamana Karma* is targeted to expel the increased *Kapha* with *Kaphanāśaka Vamana Dravyas* such as *Madanaphala*.

According *Sārangadhara Uttara Khanda* (3/18), *Kapha* is eliminated by using the drugs of bitter taste, fast and hot in quality (*Kapham; Katu, Tikṣṇa, Uṣṇa*). In physically weak, *Śamana Cikitsā* is the only option as the *Vaman Karma* is contraindicated.

2.12.3 Virechana:

Virechana Karma is a medicated purgation therapy, mainly aids in eradicating the imbalanced or aggravated *Pitta Doṣa* from the body through the anal route (R. K. Sharma & Dash, 2005) (Sharma & Dash, 2005, p. 3) that are accumulated in the liver and gallbladder and completely cleanses the gastro-intestinal tract (Sharma, 2010, p. 326). It is one of the *Śodhana* procedures for the *Pitta Doṣa* (Sharma & Dash, 2005, p. 178). In *Caraka Cikitsā Sthāna* (18/131) the course of *Kaphaja Kāsa* there appears *Tamaka* arising from *Pitta* as secondary *Doṣa*. In *Aṣṭāṅga Hṛdaya Cikitsā Sthāna* (3/70) such condition the methods of treatment (*Virechana*) prescribed for *Pittaja Kāsa* should be administered. It is a safe procedure without side effects.

In *Caraka Cikitsā Sthāna* (18/85-86), the procedure of *Virechana* is described as follows in *Caraka Cikitsā Sthāna*. When the phlegm is thin, then the patient should be given purgation therapy prepared of unctuous and cooling ingredients and *Trivṛt* mixed with sweet drugs. If the phlegm is thick, then *Trivṛt* should be mixed with bitter drugs and given for purgation.

After the administration of purgation therapy *Peya* (thin gruel) should be given followed by food preparations, medicated *Ghee* and recipes of linctus.

2.12.4 Anuvāsana Vasti:

Anuvāsana Vasti is prepared with nourishing herbs such as *Balā* and *Aśvagandhū* in a sesame oil base and administered to improve strength of the patients.

2.12.5 Śirovirechana or Nasya:

This comprises use of herbal drops, medicated oils or *Ghṛta* through nostrils. It is done to purify nasal passages/sinuses.

2.12.5.1 Dhūmapāna:

धुमांस्तानेव दद्याच्च ये प्रोक्ता वातकासिनाम् ।

कोशातकीफलान्मध्यं पिबेद्वा समनःशिलम् ॥ च चि १८/१३० ॥

Dhumānistāneva dadyācca ye proktā vātakāsinām |

Kośātaksāīphalānmadhyani pibedvā samanaḥśilam || Ca. Ci. 18/130 ||

Receipes for smoking therapy described for the treatment of *Vātika* type of *Kāsa* should also be used for the treatment of *Kaphaja kāsa*. The recipe containing the pulp of *Kośātaki* and *Manahśilā* is useful for smoking in *Kaphaja-kāsa*.

This *Dhūmapāna* is aimed at elimination of *Kapha Doṣa*. *Vamana* eliminates the accumulation of *Śleṣmā* in *Prāṇavaha Srotas*. This procedure though eliminates the *Śleṣmā* to a larger extent; this is likely to leave some amount of the *Śleṣmā* in the *Srotas*. This small amount of *Śleṣmā* remaining in the *Srotas* is then best removed by *Dhūmapāna*. In a physically weak, or else the accumulation is least since the beginning; *Dhūmapāna* may be effectively carried out even without prior *Vamana Karma*. Further the herbs used in *Dhūmapāna* can relieve the stiffness of the *Prāṇavaha Srotas* adding to the benefits of the patient. *Kaphahara* and *Srotomardava* effect of *Dhūmapāna* clears the air passage allowing

the free movement of *Prāṇavāyu*. As the medicines are directly delivered into the site of lesion i.e. *Prāṇavaha Srotas*, one can expect prompt and spontaneous remission of symptoms of *Kaphaja Kāsa*. *Dhūmapāna* may be repeated several times depending upon the requirement. For the cure of *Kaphaja Kāsa*, *Śamana Dhūma* (smoke of drugs which mitigate the *Doṣas*) should be inhaled and *Śodhana Dhūma* (purifactory) smoke inhalation should be done when there is thick *Kapha* (Murthy, 2003, p. 34).

2.12.5.2 THE DRUGS USED IN KAPHAJA KĀSA FOR DHŪMAPĀNA

Table 4: List of drugs

Name of the medicines	Properties
<i>Manaśilā</i>	<i>Kāсахara, Śvāsahara, Lekhani, Katu, Snigdha</i>
<i>Haratāla</i>	<i>Tridoṣa Hara, Snigdha, Katu, Uṣṇa, Viśahara</i>
<i>Yaṣṭimadhu</i>	<i>Svarya, Svādu, Śīta, Pittanāśinī, Kṣāya, Śothahara</i>
<i>Jatāmāmsi</i>	<i>Tridoṣaghna</i>
<i>Nāgaramothā</i>	<i>Kaphaghna</i>
<i>Ingudiphala</i>	<i>Kaphavātahara, Rasāyana, Kṛimihara</i>

According to *Astāṅga Hṛdaya Cikitsā Sthāna* (3/68-69), smoke of *Manaśilā*, *Elā Madhuka*, *Māmsi*, *Mustā* and bark of *Ingudi* together, inhaled in the prescribed procedure of *Kāsaghna Dhūpa* (anti- cough inhalation) followed by drinking of warm milk added with *Guḍa* (jaggery) after expectoration of sputum. This, cures cough with the predominance of *Vāta* and *Śleṣman* (*Kapha*), through chronic, without delay.

Above mentioned medicines facilitate easy expulsion of sputum from the lungs. By *Dhūmapāna* the inhaled drugs directly reach the site of action, so that give faster relief to the patient.

2.12.6 *Cūrṇa* used in *Kaphaja Kāsa*

Table 5: List of *Cūrṇa* used in *Kaphaja Kāsa*

<i>Cūrṇa</i>	Ingredients	Benefits
<i>Samaśakāra</i>	<i>Lavanga</i> (1tola), <i>Jatiphala</i> (1tola), <i>Pippalī</i> (1tola), <i>Maricha</i> (2tola), <i>Nāgara</i> (16tola), <i>Śarkarā</i> (20tola)	Cough, Cold, Asthma, Bronchitis, Throat pain and infection
<i>Talisādi</i>	<i>Talisa</i> (12gms), <i>Maricha</i> (24gms), <i>Śuṅṭhū</i> (36gms), <i>Pippalī</i> (48gms), <i>Vamśalochana</i> (60gms), <i>Elā</i> (6gms), <i>Tvak</i> (6gms), <i>Śarkarā</i> (384gms)	Cough, Cold, Asthma, Bronchitis, Fever, Vomiting, diarrhoea, anemia
<i>Sitopalādi</i>	<i>Sitopalādi</i> (16parts), <i>Vamśalochana</i> (8 parts), <i>Pippalī</i> (4 parts), <i>Elā</i> (2 parts), <i>Twak</i> (1 parts)	Treatment of respiratory diseases, cough, low digestion power, pain in abdomen

2.12.7 *Kwātha* used in *Kaphaja Kāsa*

The following *Kwāthas* (decoction) are recommended to cure *Kaphaja* type of *Kāsa*

कट्फलं कत्तुणं भार्गी मुस्तं धान्यं वचाभये ।

शुण्ठीं पर्पटकं शुङ्गीं सुराहं च शतं जले ॥ च चि १८/११२ ॥

Kaṭṭhalani kattṛṇani bhārgāni muṣṭāni dhānyāni vacābhaye ।

Śuṅṭhīni parpaṭakanī śuṅṭhīni surāhvāni ca śṛṭāni jāle | | Ca. Ci. 18/112 | |

मधुहिङ्गयुतं पेयं कासे वातकफात्मके ।

कण्ठरोगे मुखे शूने श्वासहिक्काज्वरेषु च ॥ च चि १८/११३ ॥

Madhuhīṅguyutāni peyāni kāse vātakaphātmake |

Kaṅṭharoge mukhe śūne śvāsahikkājvareṣu ca | | Ca. Ci. 18/113 | |

पाठां शुण्ठीं शटीं मूर्वां गवाक्षिं मुस्तपिप्पलीम् ।

पिष्ट्वा घर्माम्बुना हिङ्गुसैन्धवाभ्यां युतां पिबेत् ॥ च चि १८/११४ ॥

Pāṭhāni śuṅṭhīni śaṭīni mūrvaṅi gavaṅkṣiṅi mustapippalīm |

Piṣṭvā gharṁāmbunā hīṅgusaīndhavābhyāni yutāni pibet | | Ca. Ci. 18/114 | |

नागरातिविषे मुस्तं शृङ्गीं कर्कटकस्य च ।

हरीतकीं शटीं चैव तेनैव विधिना पिबेत् ॥ च चि १८/११५ ॥

Nāgarātiṅviṣe mustāni śṛṅgīni karkaṭakasya ca |

Harītakīni śaṭīni caiva tenaiva vidhinā pibet | | Ca. Ci. 18/115 | |

तैलभृष्टं च पिप्पल्याः कल्काक्षं ससितोपलम् ।

पिबेद्वा श्लेष्मकासघ्नं कुलत्थरससंयुतम् ॥ च चि १८/११६ ॥

Tailabhṛṣṭāni ca pippalyāḥ kalkākṣāni sasitopalam |

Pibedvā śleṣmakāsaghnani kulattharasasainiyutam | | *Ca. Ci. 18/116* | |

कासमर्दाश्विट्भृङ्गराजवार्ताकजो रसः ।

सक्षौद्रः कफकासघ्नः सुरसस्यासितस्य च ॥ च चि १८/११७ ॥

Kāsamardāśvaviṭbhr̥ṅgarājavārtākajo rasaḥ |

Sakṣaudraḥ kaphakāsaghnaḥ surasasyāsitasya ca | | *Ca. Ci. 18/117* | |

Kaṭphala, Kattr̥ṇa, Bhārgī, Mustā, Dhānya, Vacā, Abhayā, Śuṅṭhī, Parpaṭaka, Śuṅgī, and *Surāhva* should be boiled with water. This decoction added with honey and *Hiṅgu* should be taken if *Kāsa* is caused by *Vāyu* and *Kapha*. It also cures throat diseases, odema in the face, asthma, hiccup, and fever.

The patient should take *Pāṭhā, Śuṅṭhī, Śaṭī, Mūrvā, Gavākṣi, Mustā, Pippalī* in paste form along with warm water mixed with *Hiṅgu* and *Saindhava*.

In the above mentioned manner, the patient should take *Nāgara, Ātviṣā, Mustā, Karkaṭa-Śṛṅgī, Harītakī* and *Śaṭī*.

One *Akṣa* of the paste of *Pippalī*, fried with oil should be added with *Sitopalā* (sugar having large size crystal). Intake of this recipe along with the soup of *Kulattha* cures *Kaphaja* type of *Kāsa*.

Intake of the juice of *Kāsamarda*, stool of horse, *Bhr̥ṅgarāja, Vārtāka* and black variety of *surasā* along with honey cures *Kaphaja Kāsa* (Sharma & Dash, 2005, p. 184).

2.12.8 Leha used in Kaphaja Kāsa

देवदारु शटी रास्ना कर्कटाख्या दुरालभा ।

पिप्पली नागरं मुस्तं पथ्याघात्रीसितोपलाः ॥ च चि १८/११८ ॥

Devadāru śaṭī rāsnā karkaṭākhya durālabhā |

Pippalī nāgaraiṅ mustaiṅ pathyādhātrīsītopalāḥ | | Ca. Ci. 18/118 | |

Deva-dāru, Śaṭī, Rāsnā, Karkaṭa- Śuiṅī and Durālabhā (should be made to power and) mixed with honey and oil. Intake of this linctus cures *Kaphaja Kāsa* associated with aggravated *Vāyu*.

Pippalī, Nāgara, Mustā, Pathyā, Dhātrī and Sītopalā (should be made to power and) mixed with honey and oil. Intake of this linctus cures *Kaphaja Kāsa* associated with aggravated *Vāyu*.

मधुतैलयुतावेतौ लेहौ वातानुगे कफे ।

पिप्पली पिप्पलीमुलं चित्रको हस्तिपिप्पली ॥ च चि १८/११९ ॥

Madhutailayutāvetau lehau vātānuge kaphē |

Pippalī pippalīmulaṅ citrako hastipippalī | | Ca. Ci. 18/119 | |

Pippalī, Pippalī-Mula, Citraka and Gaja-Pippalī should be made into linctus by adding honey. Intake of this cures *Kaphaja Kāsa*.

पथ्या तामलकी धात्री भद्रमुस्ता च पिप्पली ।

देवदार्वभया मुस्तं पिप्पली वेश्वभेषजम् ॥ च चि १८/१२० ॥

Pathyā tāmalakī dhātrī bhadramustā ca pippalī |

Devadārvabhayā mustaiṅ pippalī veśvabheṣajam | | Ca. Ci. 18/120 | |

Pathyā, Tāmalakī, Dhātrī, Bhadra-Mustā and Pippalī should be made to a linctus by adding honey. Intake of this cures *Kaphaja Kāsa*.

Deva-Dāru, Abhayā, Mustā, Pippalī and *Veśva-Bheṣaja* should be made to a linctus by adding honey. Intake of this cures *Kaphaja Kāsa*.

विशाला पिप्पली मुस्तं त्रिवृता चेति लेहयेत् ।

चतुरो मधुना लेहान् कफकासहरान् भिषक् ॥ च चि १८/१२१ ॥

Viśālā pippalī mustāni trivṛtā ceti lehayet ।

Caturo madhunā lehān kaphakāśaharān bhiṣak । । Ca. Ci. 18/121 । ।

Viśālā, Pippalī, Mustā and *Trivṛtā ceti Lehayet* should be made to a linctus by adding honey. Intake of this cures *Kaphaja Kāsa*.

सौवर्चलाभयाधात्रीपिप्पलीक्षारनागरम् ।

चूर्णितं सर्पिषा वातकफकासहरं पिबेत् ॥ च चि १८/१२२ ॥

Sauvarcalābhayādhātrīpippalīkṣāranāgarām ।

Curṇitāni sarpiṣā vātakaphakāśaharāni pibet । । Ca. Ci. 18/122 । ।

Intake of the power of *Sauvarcala, Abhayā, Dhātrī, Pippalī, Kṣāra* and *Nāgara* along with ghee cures *Kāsa* caused by *Vāta* and *Kapha* (Sharma & Dash, 2005, p. 185).

2.12.9 *Ghṛta* used in *Kaphaja Kāsa*

Among the four types of *Sneha Dravya* mentioned in *Āyurveda*, *Ghee* is the best one because of its power to assimilate the correct ties of the ingredients added to it without losing its own properties effectively. It mitigates *Vāta, Pitta* and *Kapha*.

The following medicated *Ghee* is prescribed for patients with *Kaphaja Kāsa*.

Daśamūlādi-Ghṛta, Kaṇṭakārī- Ghṛta, Kulatthādi-Ghṛta

- *Daśamūlādi-Ghṛta*

दशमूलाढके प्रस्थं घृतस्याक्षसमैः पचेत् ।

पुष्कराह्वशटीबिल्वसुरसव्योषहिङ्गुभि ॥च चि १८/१२३ ॥

Daśamūlādhake prasthani ghṛtasyākṣasamaiḥ pacet |

Puṣkarāhvaśaṭībilvasurasavyoṣahīṅgubhi | |Ca. Ci. 18/123| |

पेयानुपानं तत् पेयं कासे वातकफात्मके ।

श्वासरोगेषु सर्वेषु कफवातात्मकेषु च ॥च चि १८/१२४ ॥

Peyānupānani tat peyaṁ kāse vātakaphātmake |

Śvāsarogeṣu sarveṣu kaphavātātmakeṣu ca | |Ca. Ci. 18/124| |

one *Prastha* of *Ghee* should be cooked by adding one *Ādhaka* of the decoction of *Daśa-mūlā*, and the paste of one *Akṣa* each of *Puṣkara-mūlā*, *Śaṭī*, *Bilva*, *Surasā*, *Śuṅṭhī*, *Pippalī*, *Marica* and *Hīṅgu*. After taking this medicated ghee, the patient should be given *Peya* (*thin gruel*) as post-prandial drink. It cures *Kāsa* caused by *Vāyu* and *Kapha*, and all the types of asthma caused by *Vāta* and *Kapha*.

- *Kaṅṭakārī- Ghṛta*

समुलफलपत्रायाः कण्टकार्या रसाढके ।

घृतप्रस्थं बलाव्योषविडङ्गशटिचित्रकैः ॥च चि १८/१२५ ॥

Samulaphalapatrāyāḥ kaṅṭakāryā rasādhake |

Ghṛtaprasthani balāvvyoṣaviḍṅgaṣaṭicitrakaiḥ | |Ca. Ci. 18/125| |

सोवर्चलयवक्षारपिप्पलीमूलपौष्करैः ।

वृश्चीरबृहतीपथ्यावानीदाडिमर्धिभिः ॥च चि १८/१२६ ॥

Souvarcalayavakṣārapippalīmūlapauṣkaraiḥ ।

Vṛścīrabṛhatīpaththyāvānīdāḍimardhibhiḥ । | Ca. Ci. 18/126 | |

द्राक्षापुनर्नवाचव्यदुरालम्भाम्लवेतसैः ।

शृङ्गीतामलकीभार्गीरास्नागोक्षुरकै पचेत् ॥च चि १८/१२७ ॥

Drākṣāpunarnavācavyadurālabhāmlavetasaiḥ ।

Śṛṅgītāmalakībhārgīrāsnāgokṣurakai pacet । | Ca. Ci. 18/127 | |

कल्कैस्तत् सर्वकासेषु हिक्काश्वासेषु शस्यते ।

कण्टकारीघृतं ह्येतत् कफव्याधिनिःसूदनम् ॥च चि १८/१२८ ॥

Kalkaistat sarvakāseṣu hikkāśvāseṣu śasyate ।

Kaṇṭakārīghṛtāni hyetat kaphavyādhinisūdanam । | Ca. Ci. 18/128 | |

One *Ādhaka* of the decoction of *Kaṇṭakārī* along with its root, fruit and leaf, and one *Prastha* of *Ghee* should be cooked by adding the paste of *Balā*, *Śuṅṭhū*, *Pippalī*, *Marica*, *Viḍaṅga*, *Śaṭī*, *Citraka*, *Sauvarcala*, *Yava-mūlā*, *Pippalī-mūlā*, *Puṣkara-mūlā*, *Vṛścīra* (white variety of *Punarnavā*), *Bṛhatī*, *Pathyā*, *Yavānī*, *Dāḍima*, *Ṛddhi*, *Bhīṣaṭī*, *Drākṣā*, *Punarnavā* (red variety), *Cavya*, *Durālabhā*, *Āmlavetasa*, *Śṛṅgī*, *Tāmalakī*, *Bhārgī*, *Rāsnā* and *Gokṣuraka*. It is useful in all types of *Kāsa*, hiccup and asthma. This is called *Kaṇṭakārī- Ghṛta* and it cures all types of diseases caused by *Kapha*.

- *Kulatthādi-Ghṛta*

कुलत्थरसयुक्तं वा पञ्चकोलशृतं घृतम् ।

पाययेत् कफजे कासे हिक्काश्वासे च शस्यते ॥च चि १८/१२९ ॥

Kulattharasayuktam vā pañcakolaśṛtam ghṛtam ।

Pāyayet kaphaje kāse hikkāśvāse ca śasyate । । Ca. Ci. 18/129 । ।

Ghee cooked with the decoction of *Kulattha* (the paste) of *Pañca-kola* is useful in *Kaphaja kāsa*, hiccup, asthma.

2.13 MANAGEMENT OF ASSOCIATED COMPLICATIONS

तमकः कफकासे तु स्याच्चेत् पित्तानुबन्धजः ।

पित्तकासक्रियां तत्र यथावस्थं प्रयोजयेत् ॥च चि १८/१३१ ॥

Tamakāḥ kaphakāse tu syāccet pittānubandhajḥ ।

Pittakāsakriyāṁ tatra yathāvasthāṁ prayojayet । । Ca. Ci. 18/131 । ।

वाते कफानुबन्धे तु कुर्यात् कफहरीं क्रियाम् ।

पित्तानुबन्धयोर्वातकफयोः पित्तनाशिनीम् ॥च चि १८/१३२ ॥

Vāte kaphānubandhe tu kuryāt kaphaharīṁ kriyām ।

Pittānubandhayorvātakaphayoḥ pittanāśinīm । । Ca. Ci. 18/132 । ।

आर्द्रे विरुक्षणं शुष्के स्निग्धं वातकफात्मके ।

कासेऽन्नपानं कफजे सपित्ते तिक्तसंयुतम् ॥च चि १८/१३३ ॥

Ādre virukṣaṇāni śuṣke snigdhanī vātakaphātmake |

Kāse'nnapānāni kaphaje sapitte tiktasānyutam | |Ca. Ci. 18/133 | |

- *Kaphaja Kāsa* with *Tamaka*- caused by *Pitta*- treatment of *Paittika Kāsa*
- *Kaphaja Kāsa* with *Vātika* – therapies for the alleviation of *Kapha*
- *Pitta* is associated with *Kaphaja Kāsa* and *Vātika*- therapies for the alleviation of *Pitta*
- *Kaphaja* and *Vātika* types of *Kāsa* with phlegm- drying therapies
- *Kaphaja* and *Vātika* types of *Kāsa* with no phlegm- unctuous therapies
- *Kaphaja Kāsa* with *Pitta*- foods and drinks mixed with bitter ingredients.

2.14 ĀYURVEDIC SIDDHAYOGA FOR KAPHAJA KĀSA:

The following medicine preparations may be prescribed to patients of *Kaphaja Kāsa* considering there *Doṣa*, *Duṣya* and *Bala*. *Rasa Sindūra*, *Kaphaketu Rasa*, *Kapha Kuthāra Rasa*, *Ānanda Bhairava Rasa*, *Nāgavallabha Rasa*, *Chandrāmṛta*, *Abhraka Bhasma*, *Ṭaṅkaṇa Bhasma*, *Shubhra Bhasma*, *Vāsāriṣṭa*, *Kanakāsava*, *Lavaṅgādi Vati*, *Khadirādi Vati* etc. (Shukla, 2006, p. 417).

2.15 DISCUSSION

Respiratory diseases afflict every individual at some time or other in their life. *Āyurveda* described all respiratory disorders under two major categories; a) *Kāsa* and b) *Śvāsa*. In *Āyurveda*, *Kāsaroga* is a well-documented disease. The *Nidāna*, *Samprāpti*, *Purvarūpa*, *Rūpa* and *Cikitsā* of *Kāsa* has been described elaborately as a separate disease. This is analogous with CB in modern on the parameters of risk factors, etio-pathology, clinical manifestations and principles of treatment.

The main aim of *Āyurveda* is “*Svasthasya svāsthya rakṣaṇam*” - to preserve good health of the healthy person and “*Āturasya vikara praśamanam*” to cure the diseases of the diseased

man. In both cases, detoxification is necessary to cleanse out the toxins through *Pañchakarma* procedures. This improves the overall quality of life and helps absorb medicines effectively. In *Kaphaja Kāsa* the *Doṣas* involved are mostly *Kapha* and *Vāta*. To reduce or pacify *Kapha*, *Āyurveda* has suggested dietary, lifestyle and herbal treatment strategies based on the concepts of *Doṣa Śamana*.

The sputum is very thick and stubborn in *Kaphaja Kāsa*, hence the treatment mainly focuses on strong purification process. According to *Caraka Cikitsā Sthāna* (18/107) most preferred *Śodhana Cikitsā* prescribed for *Kaphaja Kāsa* are *Vamana* and *Virechana* to be administered in the beginning. (Sharma & Dash, 2005, p. 183). The emetic drugs given even in subemetic dose increase the bronchial secretion by producing less stubborn (thick-sticky) sputum, so that it becomes easier to expectorate (elimination of *Sama Kapha Doṣa*), while *Virechana* help to remove vitiated *Doṣas* in *Pitta* predominant conditions (*Sama Doṣa* and allergens, toxins). The herbs and herbo-minerals drugs used in *Kaphaja Kāsa* have *Tikta*, *Kaṭu Rasa*, *Laghu*, *Tikṣṇa Guṇa*, light and penetrating properties, *Uṣṇavirya* (hot potency) antagonistic to the *Guṇas* of *Kapha Doṣa*, aimed to liquefy the thick bronchial secretion and help in cough expectoration. There by normalizing *Kapha Doṣa*. *Agnimāndya* (diminished digestion power) is corrected by *Pippalī*. The occlusion of *Prāṇavahasrotas* (*Srota Sanga*) is corrected by the *Uṣṇa* (hot) and *Kāśahara* property and the *Doṣaprapakopa* is corrected by the *Doṣaśamana* property of the drugs. The herbal and herbo-mineral drugs for *Kaphaja Kāsa* discussed in this study relieves expiratory dyspnea, chest congestion, pain in the chest, cough and cold; hence beneficial for all symptoms of *Kāsa*. The improvement in symptoms is due to involves reduction of inflammation of the bronchioles, by making the secretion thin and smooth expectoration. All herbal drugs and herbo-mineral compound having anti allergic, bronchodilator effect, and anti-inflammatory and immune-modulator properties. These properties of drugs help in inflammation in bronchial lumen, increase strength of respiratory system. Herbal and herbo-mineral compounds pacify *Duṣita Vāta*, *Pitta* and *Kapha Doṣa* and control CB problems and improve immunity. Healthy lifestyle, breathing exercise like *Yoga*, *Prāṇāyāma*, and meditation has shown to reduce symptoms and improve the lung function

(Donesky-Cuenco et al., 2009; Katiyar & Bihari, 2006; Liu et al., 2014; Soni, Munish, Singh, & Singh, 2012).

Clinical studies were done to measure the efficacy of few *Āyurvedic* compounds on *Kaphaja Kāsa*. A recent study by (Ram & Baghel, 2015) was conducted on 66 patients to evaluate the clinical efficacy of *Vyāghrīharitaki Avaleha* in the management of CB. Result shows a significant improvement in both primary and secondary outcome measures; improvement in FEV1 and reduction in productive cough, dyspnoea, wheezing, chest pain, sore throat, nasal congestion of CB after 12 weeks. Another study was carried out to evaluate the efficacy of *Haritakyādi Gutikā* in patients suffering from *Kaphaja Kāsa* where statistically significant ($P < 0.01$) results were observed in the subjective symptoms like *Mandāgni*, *Gourava*, *Niṣṭīva* etc., and objective signs like ESR, Neutrophils and Eosinophils counts which showed that *Haritakyādi Gutikā* was an effective treatment for *Kaphaja Kāsa* (Deeja, Satya Priya, Venkat Shivudu, & Ramreddy, 2013). A clinical study was carried out to study efficacy of *Samaśakāra Cūrṇa* on 60 patients. The results showed that *Samaśakāra Cūrṇa* have good results in the *Kaphaja Kāsa*. A comparative clinical study demonstrated combined effect of *Haritāki* and *Saindhava Lavana* is more effective than the single drug therapy; either *Haritāki* or *Saindhava Lavana* alone (Rout & Dwivedi, 2011). A recent study by (Acharya, Shilaja, & Veena, 2014) showed significant relief by *Anuritādi* lozenges in children of *Kaphaja Kāsa* in comparison to placebo lozenges in the signs & symptoms of *Kaphaja Kāsa*.

2.16 CONCLUSION

Kaphaja Kāsa is quite similar to CB based on *Nidāna*, *Samprāpti* and *Lakṣaṇa*. Hence, the treatment of CB can be understood in terms of *Kaphaja Kāsa Cikitsā*. This study highlighted that *Śodhana* and *Śamana Cikitsā* are important in the treatment of *Kaphaja Kāsa*. Herbal and herbominerals products are also effective in CB. The clinical trial on the same has proven to have good result in CB. *Āyurvedic* therapy can be considered as a safe and effective treatment modality in the management of CB. An update of the current evidence is required. Further studies may be designed to explore the potential of *Āyurvedic* formulations in management of CB.

3.0 REVIEW OF SCIENTIFIC LITERATURE

3.1 EPIDEMIOLOGY OF COPD

In epidemiology, the estimation of prevalence rates may vary considerably as divergent phenotypic entities (chronic bronchitis, emphysema and asthma) converge on the term COPD and according to the diagnostic tools used. COPD is a major but neglected global epidemic that increasingly constitutes a burden for the society and responsible for early mortality, soaring death rates and significant expenditure to health systems (Raherison & Girodet, 2009). COPD affects approximately 210 million people worldwide (WHO, 2007). It is one of the few conditions in which mortality is rising, and the projection for 2020 indicates that it will be the third leading cause of death worldwide (from sixth in 1990) (Murray & Lopez, 1997) and fifth leading cause of years lost through early mortality or handicap (disability-adjusted life years) (12th in 1990) (Murray, 1994). It is one of the leading causes of morbidity and mortality in the industrialized and the developing countries (Rosenberg, Kalhan, & Mannino, 2015). Evidence from epidemiological studies showed consistent relations between air pollution and various outcomes (respiratory symptoms, reduced lung function), having a remarkable role in the exacerbation and in the pathogenesis of lung diseases (Viegi, Maio, Pistelli, Baldacci, & Carrozzi, 2006).

3.2 CAUSE AND RISK FACTORS OF COPD

Worldwide, the most commonly encountered risk factor for COPD is tobacco smoking. Non-smokers may also develop COPD. An estimated 25–45% of patients with COPD have never smoked (Dewar & Curry, 2006). Other factors include exposure to indoor and outdoor air pollution, occupational exposure to irritants, and infections airway hyper-responsiveness, asthma, and certain genetic variations (Mannino & Braman, 2007; Mannino, 2002, 2003).

Severe deficiency for alpha-1-antitrypsin is rare and the impact of other genetic factors on the prevalence of COPD has not been established (Pauwels & Rabe, 2004). Biomass smoke is the leading cause of COPD in developing countries. In rural areas, females are more exposed to biomass smoke because of traditional lifestyles. As the duration and the intensity of exposure enhance, the possibility of having altered pulmonary function test results is higher (Balcan et al., 2016). Studies have shown that exposure to wood or charcoal smoke was strongly associated with COPD after adjusting for age and smoking (Orozco-Levi et al., 2006). About 3 billion people, half the worldwide population, are exposed to smoke from biomass fuel compared with 1.01 billion people who smoke tobacco, which suggests that exposure to biomass smoke might be the largest risk factor for COPD globally (Brashier & Kodgule, 2012; Salvi & Barnes, 2009). A review of eight morbidity and six mortality studies suggested there is evidence of chronic effects of air pollution on the prevalence and incidence of COPD among adults (Schikowski et al., 2014).

3.3 OCCUPATION AND COPD

Occupations linked to increased prevalence of COPD include construction, leather, rubber, plastics manufacturing, textiles, food products, quartz, sawdust, asbestos, solvents welding fumes, wood dust, armed forces, sales, construction, and agriculture (Hnizdo, Sullivan, Bang, & Wagner, 2004; Ojha, Gupta, & Raju, 2013). A survey recognized industries and occupations such as stock, freight, material handlers, records processing and distribution clerks, sales, transportation-related occupations, construction trades, machine operators and waitresses at increased risk of COPD (Hnizdo et al, 2002).

3.4 COALMINING AND COPD

Other than cigarette smoking, there is an increasing evidence of occupational exposures as a major risk factor for COPD. Studies show that coal miners suffer increased risk of coal mine

dust lung disease (CMDLD) including COPD as a respiratory hazard of coal mining (Laney & Weissman, 2014). The prevalence of COPD in non-smoking coal miners found to be 19% (Hu et al., 2006; Yasin, Beatty, & Folz, 2015). Cumulative exposure to coal dust is associated with increased risk of airway limitation (Santo Tomas, 2011) resulting in dyspnoea and fatigue on exertion limiting physical activity (Waschki et al., 2011) and adversely affecting daily living (Rabinovich, Vilaró, & Roca, 2004) and quality of life (Feldman, 2013). Although dyspnoea, the “subjective experience breathing discomfort” (Parshall et al., 2012) is considered the primary activity-limiting symptom in coal miners (Bauer, Kollmeier, Weber, Eibel, & Lemke, 2001), other symptoms, like fatigue, the “subjective perception of mental or physical exhaustion due to exertion” (Theander & Unosson, 2004) is a common feature in coal miners with COPD. It is one of the most frequently reported, distressing side effects reported by COPD patients, often having significant long-term consequences. Coal mine dust causes pneumoconiosis as not the only respiratory hazard of coal mining but research now suggests that miners also experience an excess of COPD (Burge, 1994; Coggon & Taylor, 1998; Laney & Weissman, 2014). When compared with smoking, it was found that coal dust exposure is less likely to lead to severe airflow obstruction than smoking (Oxman et al., 1993).

3.5 LUNG FUNCTION AND COPD

Focusing on spirometric criteria for airflow obstruction, coal mine dust result in obstructive, restrictive, or mixed patterns of impairment on pulmonary function testing (Cohen, Patel, & Green, 2008). A recent study has shown occupational exposure to coal dust is associated with a small mean deficit in lung function independently from the effects of smoking (Halldin, Wolfe, & Laney, 2015).

3.6 HEALTH STATUS IN COPD

Presence of comorbid symptoms significantly contribute to the impaired health status in patients with COPD (Ng et al., 2007) irrespective of the degree of airflow limitation (Agusti et al., 2010). Prominent extra-pulmonary symptoms include skeletal muscle wasting, nutritional abnormalities, systemic inflammation, cardiovascular disease, osteoporosis, lung cancer, depression, sleep disorders, and diabetes, which can potentiate the morbidity of COPD and affects the QOL (Dewar & Curry, 2006).

3.7 FUNCTIONAL EXERCISE CAPACITY IN COPD

Exercise capacity depreciates with time and is a vital determinant of health status and prognosis in patients with COPD (Ramon et al., 2014). A study on 137 male outpatients with moderate-to-very-severe COPD concluded exercise capacity decline over time in COPD patients, which was no less rapid than the decline in airflow limitation due to deterioration of dynamic ventilatory constraints during exercise (Oga et al., 2005).

3.8 DYSPNOEA AND FATIGUE IN COPD

Although dyspnoea, the “subjective experience breathing discomfort” (Parshall et al., 2012) is considered the primary activity-limiting symptom in coal miners (Bauer et al., 2001), other symptoms, like fatigue, the “subjective perception of mental or physical exhaustion due to exertion” (Theander & Unosson, 2004) is a common feature in coal miners with COPD. It is one of the most frequently reported, distressing side effects reported by COPD patients, often having significant long-term consequences. Patients with stable COPD and moderate hypoxemia have frequent and potentially important desaturation during activities of daily living and at night (Casanova et al., 2006).

3.9 ANXIETY AND DEPRESSION IN COPD

COPD is a complex, treatment-resistant disease with multiple comorbidities, depression and anxiety being the two of the most important and least treated among them (GOLD, 2014). Depression and anxiety increasingly affect the psychological well-being of working populations (Fan, Blumenthal, Watkins, & Sherwood, 2015), coal miners being more susceptible due to highly risky and stressful working environments (Liu, Wang, & Chen, 2014). Prior studies have documented association of depression and anxiety among COPD patients (Eisner et al., 2010; Giardino et al., 2010; Johansson, Carlbring, Heedman, Paxling, & Andersson, 2013; Laurin et al., 2007) more than non-COPD individuals (Felker et al., 2010). Clinically significant symptoms of depression were found in around half COPD patients (Lacasse, Rousseau, & Maltais, 2001; Yohannes, Baldwin, & Connolly, 2000) while prevalence of anxiety has been estimated at 40% (Kunik et al., 2005; Willgoss & Yohannes, 2013; Yohannes, Willgoss, Baldwin, & Connolly, 2010). About one third of COPD sufferers are afflicted by both (Panagioti, Scott, & Blakemore, 2014). Presence of these comorbid symptoms significantly contribute to the impaired health status in patients with COPD (Gudmundsson et al., 2005; Ng et al., 2007) irrespective of the degree of airflow limitation (Agusti et al., 2010).

3.10 PSYCHOLOGICAL STRESS AND COPD

A Cross-sectional study on population-based sample (N=497) of individuals aged 65 and above with COPD (post bronchodilatation FEV₁/FVC<0.70, N=136) and without COPD (N=277) was done to investigate whether life event stress was associated with greater psychological distress and poorer quality of life in older individuals with COPD, in comparison with their counterparts without COPD which indicated that life event stress was

associated with more depressive symptoms and worse quality of life in individuals with COPD, much more than in those without COPD (Lu et al., 2012).

3.11 SLEEP QUALITY AND COPD

The sleep-wake cycle is one of the biorhythms determined by the circadian timing system, also influenced by factors like physiological function, work schedules, aging, chronic illness, bodily pain etc. (Foley, Ancoli-Israel, Britz, & Walsh, 2004). Decline in sleep health, including insufficient sleep duration, irregular timing of sleep, poor sleep quality, and circadian disorders, are prevalent in respiratory diseases (Milioli et al., 2015). Patients with COPD have a higher prevalence of insomnia, frequently complain of difficulty in initiation and continuance of sleep, increased number of arousals during the night, daytime sleepiness (Budhiraja, Siddiqi, & Quan, 2015; Cormick, Olson, & Hensley, 1986), with close to 50% of patients reporting significant disturbance in sleep quality (McNicholas, Verbraecken, & Marin, 2013).

3.12 PAIN IN COPD

Pain is highly prevalent and emerging as a clinical complication in COPD (Roberts, Mapel, Hartry, Von Worley, & Thomson, 2013). The cardinal symptom of COPD is dyspnoea (breathlessness), the experience of uncomfortable and painful breathing, which constitutes a terrifying experience for many patients. A recent systematic review of 358 studies identified pooled prevalence of pain in moderate to very severe COPD to be 66% (95% CI, 44%-85%). Pain has negative clinical associations with symptoms i.e. higher pain intensity was associated with increased dyspnea, fatigue, poorer quality of life, and a greater quantity of specific comorbidities (Lee, Harrison, Goldstein, & Brooks, 2015).

Another study concluded people with COPD demonstrated more pain which interferes with activities more so than age- and gender-matched healthy people of similar age. COPD patients identified pain in the neck and trunk 3.1 times more often than healthy people (Hajghanbari, Holsti, Road, & Reid, 2012).

3.13 PULMONARY REHABILITATION (PR) IN COPD

The joint guidelines of the ATS and the ERS define PR as “evidence-based, multidisciplinary, and comprehensive intervention for patients with chronic respiratory diseases who are symptomatic and often have decreased daily life activities” (Nici, Lareau, & Zuwallack, 2010). It includes exercise training, education, and behavior modification, designed to improve the physical and psychological condition of people with COPD (Spruit et al., 2013). The main goals of PR are the reduction of symptoms, the improvement of QOL, and the increase in physical and emotional participation in everyday activities. Evidence is increasing for the efficacy of several kinds of exercise training as part of PR aimed at reducing dyspnoea and fatigue, as well as improving health-related quality of life and exercise capacity in individuals with COPD (McCarthy et al., 2015).

3.14 COMPLIMENTARY AND ALTERNATIVE MEDICINE (CAM) IN COPD

Unsatisfactory treatment outcomes from conventional drugs, and adverse effects associated with several classes of drugs, such as steroids and theophylline, contribute considerably to the growing popularity of CAM and, in particular, herbal medicine (George, Ioannides-Demos, Santamaria, Kong, & Stewart, 2004). A review on the evidence for efficacy of CAM modalities suggested patients with severe COPD may benefit from the use of acupuncture, acupressure, and muscle relaxation with breathing retraining to relieve dyspnea. Acupuncture, transcutaneous electrical nerve stimulation, supportive group therapy,

self-hypnosis, and massage therapy may provide pain relief (Pan, Morrison, Ness, Fugh-Berman, & Leipzig, 2000).

3.15 YOGA STUDIES ON COPD

A study with a quest whether Iyengar yoga program (IYP) could have potential effect on 25 patients with chronic respiratory diseases was done in which after 12 weeks of Yoga showed improvement in the following parameters. Changes in HADS anxiety and CRQ fatigue scores were statistically significant ($P < 0.05$) and changes in HUI ambulation, pain, emotion and overall score were clinically important (Santana et al., 2013).

In a study conducted in US involving 22 patients suffering from COPD subjected to selected yoga exercises for 1 hr., thrice a week for 6 weeks showed statistically significant improvements ($P < 0.05$) for the St. George Respiratory questionnaire, vital capacity, maximal inspiratory pressure and maximal expiratory pressure; thereby improved QOL and lung function on a short-term basis (Fulambarker et al., 2012).

Another study by (Gosselink, 2003) reports, in patients with COPD controlled breathing works to relieve dyspnoea by (1) reducing dynamic hyperinflation of the rib cage and improving gas exchange, (2) increasing strength and endurance of the respiratory muscles, and (3) optimizing the pattern of thoraco-abdominal motion.

An RCT conducted on 29 adult subjects with COPD there was significant improvement in pulmonary functions at 2, 4, and 8 weeks as compared with the corresponding baseline value and also a significant reduction in exercise induced broncho-constriction in the yoga group compared with control group. Yoga improved functional performance and decreased dyspnoea distress during exercise while not increasing pain (Donesky-Cuenca et al., 2009).

Effect of three months of *pranayama* (*Bhastrika*, *Kapalabhati*, *Vahya*, *Anuloma Viloma*, *Bhramari*, *Udgeetha*,) half an hour daily for six days a week studied on severe COPD patients indicated improvements in FVC, FEV1 and PEF as compared to controls (Katiyar & Bihari, 2006).

In a preliminary study on 15 patients with chronic bronchitis who received yoga therapy in the form of *pranayama* and 8 types of *asana* for a period of 4 weeks showed improvement in dyspnoea, lung function parameters (VC, FEV1, and PEF) indicating yoga may be a useful adjunct to other conventional form of therapy for COPD (Behera, 1998).

Table 6: Yoga studies on COPD

Author name and year of publication	SS (n)	Design	Variables	Result	Strength	Limitations
Santana MJ , S-Parrilla J , Mirus J , Loadman M , Lien DC , Feeny D .(2013)	25	Single group pre post	HADS, CRQ, HUI, 6MW	HADS anxiety and CRQ fatigue scores were statistically significant ($P < 0.05$), ↑ breathing capacity, mobility, energy, sleep. Positive feedback such as: "↑ tidal volume with slowing expiration".	Good sample size. Duration of intervention is long (12-week IYP)	No control group.
Holland AE , Mahal A , Hill CJ , Lee AL , Burge AT , Moore R , Nicolson C , O Halloran P , Cox NS , Lahham A , Ndongo R , Bell E . (2013)	166	Randomised control	Exercise Capacity, Physical Activity, Symptoms And QOL	This trial concluded home-based pulmonary rehabilitation can deliver equivalent benefits to centre-based pulmonary rehabilitation in a cost effective manner.	Large sample size. RC design ↓ effect of confounding Variable	Did not compare between different types of PR methods.
Ritu Soni , Kanika Munish , KP Singh , and Savita Singh (2013)	60	Two group pre – post design	Diffusion capacity (TLCO)	↑ diffusion capacity TLCO in mild COPD ↑from 17.61 ± 4.55 to 19.08 ± 5.09 ml/mmHg/min, moderate COPD ↑from 14.99 ± 4.02 to 17.35 ± 3.97 ml/mmHg/min.	RCT. 1 st study to measure DC of COPD after yoga. Good sample size.	Yoga practice list is not a valid and standardised one. After 21 days no supervised yoga training.
Donesky D , Melendez M , Nguyen HQ , Carrieri-	10	Wait List Control	6-MW, DD, FPI	DD responders showed ↑ anxiety levels, whereas anxiety levels of the DD non-responders remained unchanged. FPI	Well recognized form of yoga as intervention was	The result of Wait listed group is not

Kohlman V. (2012)		design		responders reported significant ↑ in physical function, whereas partial and non-FPI responders noted ↓ function.	used. (Modified Iyengar yoga program)	reported.
Fulambarker A, Farooki B, Kheir F, Copur AS, Srinivasan L, Schultz S. (2012)	33	Single group pre post design	QoL by st. George respiratory questionnaire, VC, MIP, MEP	St. George Respiratory questionnaire [95% confidence interval (CI) 43.13-58.47], VC (95% CI 2.53-7.65), MIP (95% CI 6.62-23.64), MEP (95% CI 1.63-13.81). It showed ↑ in the QOL and lung function on a short-term basis.	Good sample size. QoL is assessed by a well validated questionnaire	No control group. Duration of intervention (6 weeks) could be longer.
Pomidori L, Campigotto F, Amatya TM, Bernardi L, Cogo A. (2009)	11	Self as control	Oxygen Saturation (SaO2%), VT, MV RR, IT, TBT, FIT, Borg scale.	VT(sb) - L 0.54[0.04], (y)- L 0.74[0.08], P = .01; a significant ↑ in SaO2% (sb) 91.5% [1.13], (y) 93.5%[0.99], P = .02 Short-term training in yoga is well tolerated and induces favourable respiratory changes in patients with COPD.	Immediate effect was studied. 30 min. yoga vs 30 min. spontaneous breathing.	Small sample size Result can not be generalized.
Donesky-Cuenco D, Nguyen HQ, Paul S, Carrieri-Kohlman V. (2009)	29	Two group pre post RCT	DI, DD, 6MW, HRQoL,	↓ DD in the yoga group compared to UC (ES, 0.67; $p=0.08$), ↓DI in 6MW test (effect size [ES], 0.20; $p=0.60$, ↑6MW distance ($+71.7 \pm 21.8$ feet versus -27.6 ± 36.2 feet; ES = 0.78, $p=0.04$)	anxiety and depressive symptoms with standardized instruments	suboptimal intervention dose
Behera D. (1998)	15	Single group pre post	VC, FEV1, and PEFr, VAS	Yoga may be a useful adjunct to other conventional form of therapy for COPD.	First study on efficacy of yoga in COPD.	No control group. Sample size is less. Short term study.