

CRITICAL REVIEW OF KAPHAJA KASA VIS-À-VIS CHRONIC BRONCHITIS**Geetha Kumari S¹, Mythrey R.C², Shantaram K.S³,**¹ Lecturer Dept Of Kaumarabhritya A.L.N.R.Memorial Ayurvedic College and Hospital Koppa, Karnataka, India² Assistant Professor Dept of PG studies in Kaya Chikitsa Govt Ayurvedic Medical College Mysore, Karnataka, India³ Professor Dept of PG studies in Kaya Chikitsa Govt Ayurvedic Medical College Mysore, Karnataka, India**ABSTRACT**

Kasa is the debilitating disease of Pranavaha srotas, when untreated, it may lead to dreadful diseases like Shwasa, Kshaya etc. Among 5 types of Kasa, Kaphaja Kasa where Kasa with prabhuta Ghana. Snigdha, bahala kapha is present corresponds either to acute bronchitis or chronic obstructive bronchitis. But in this review article, critical analysis is done on Chronic Bronchitis w.s.r Kaphaja Kasa. Chronic Bronchitis is a clinically defined condition characterized by Chronic Cough with Expectoration for atleast 3months of the year for more than 2 consecutive years. According to WHO, the more familiar terms of chronic bronchitis and emphysema are no longer used; they are now included within the Chronic Obstructive Pulmonary Disease (COPD) diagnosis. COPD is major cause of health care burden world wide and the only leading cause of death among respiratory diseases, that is increasing in prevalence

Keywords : Kaphaja Kasa, Chronic Bronchitis, Chronic Obstructive Pulmonary Disease

INTRODUCTION

Kasa is the debilitating disease of Pranavaha srotas, when untreated, it may lead to dreadful diseases like Shwasa, Kshaya¹ etc ... Among 5 types of Kasa, Kaphaja Kasa vis-à-vis Chronic Bronchitis has become more prevalent in these days because of the exposure to both Active and Passive Smoking, Air Pollution, Occupational Hazards² etc...In Charaka samhita, it is mentioned that one should treat according to severity of disease or according to dominance of dosas and the severity of all types of kasa increases in successive disorder³. Kaphaja Kasa in which Kasa with prabhuta Ghana. Snigdha, bahala kapha lakshanas is

present very well corresponds to disease acute bronchitis or chronic bronchitis. But in this review article, it is emphasized on Chronic Bronchitis w.s.r Kaphaja Kasa. According to WHO, the more familiar terms of chronic bronchitis and emphysema are no longer used; they are now included within the Chronic Obstructive Pulmonary Disease (COPD) diagnosis⁴. Emphysema and chronic bronchitis are often clinically grouped together and referred to as chronic obstructive pulmonary disease (COPD), since many patients have overlapping features of damage at both the acinar level (emphysema) and bronchial level (bronchitis), almost certainly because one extrinsic trigger i.e., cigarette

smoking which is common to both. In most patients, COPD is the result of long-term heavy cigarette smoking; about 10% of patients are nonsmokers.⁵

COPD is major cause of health care burden world wide and the only leading cause of death among respiratory diseases, that is increasing in prevalence. Prevalence is directly related to the prevalence of tobacco smoking and, in low and middle income countries, where biomass fuels are used in excess. In India, COPD is the second most common lung disorder after pulmonary tuberculosis⁶. Current estimates suggest that 80million people world wide suffer from moderate to severe disease. In 2005, COPD contributed to more than 3million deaths (5% of death globally) but by 2020 it is forecast to represent the third most important cause of death world-wide. The anticipated rise in morbidity and mortality from COPD will be greatest in Asian and African countries as a result of their increasing tobacco consumption⁷. The disease is frequently encountered in the middle aged subjects and is rare below the age of 35years. COPD affects males more frequently because of smoking. It is equally prevalent in rural and urban areas⁸. In a recent study in Southern India, the prevalence rate of COPD in adults was around 7%.

DISEASE REVIEW : Samanya and Vishe-sha nidana are been explained for Kaphaja kasa, where both play a major role in the manifestation of disease Kaphaja Kasa. All Nidanans mentioned in Kasa can be categorized into Khavaigunyotpadaka, Vataprakopaka, Kaphaprakopaka.

1. Khavaigunyotpadaka Nidana: The Nidanans which cause sroto dushti resulting in the susceptibility of srotas for the manifestation of disease. There are 2 causes

for Sroto dushti mentioned in Charaka samhita⁹

1. Ahara and Vihara possessing the similar qualities to that of doshas and aggravates the doshas.
2. Ahara and Vihara which vitiates the dhatu

The etiological factors like Raja and Dhuma comes under second category and these etiological factors have direct contact with pranavaha srotas leading to the Khavaigunyata in pranavaha srotas i.e., damages the epithelium of respiratory tract.

2. Vataprakopaka Nidana: The etiological factors responsible for aggravation of vata are rukshanna bojana, ratri jagarana, vega udeerana, vega dharana, vyayama.

For all types of kasa to occur, vata is the Samavayi Karana¹⁰ i.e., main dosha involved for the manifestation of disease. Vata prakopa occur either by Dhatu Kshaya or Avarana. Hence Nidanans mentioned by vagbhata for kasa are either of the two above. Aggravated vata moves all over the body, lodges in Pranavaha srotas which has been affected by the Khavaigunya utpadaka nidana like Dhuma, Raja.

3. Kapha Prakopaka Nidana: The etiological factors responsible for kapha prakopa are guru, snigdha, utkledi, vijjala ahara, diwaswapna. These Nidana aggravate Kapha in uras causing obstruction to downward movement of Vata in pranavaha srotas. This leads to the pratiloma gati of vata which manifests Kasa with Kapha Shteevana.

ANALYSIS OF NIDANA:-

- 1. Dhumopaghata:** Dhumena mukhana-saapravishtena Upaghatah¹¹
 - Upaghata which is caused by Dhuma entering through the Mukha and Nasa is Dhumopaghata. Dhuma - Prolonged cigarette smoking, inhalation of noxious

gases like SO₂. This causes partial paralysis of cilia of respiratory epithelium and produces hypertrophy and hyperplasia of mucus secreting glands. This leads to hypersecretion and plugging of mucus which in turn causes obstruction to the airways¹². The airflow limitation is usually progressive and associated with an abnormal inflammatory response of the lung to noxious particles and gases.

- **Raja:** Rajasa iti mukha nasa pravishta dhuli ityarthah¹³

Raja is the dust entering through the nose and mouth. Persons who are engaged in occupations which exposes them to either organic or inorganic dusts like cotton dust, saw dust etc...are susceptible to develop COPD¹⁴

- **Rasata:** Rasatah iti vatena urdhvam neetat aama syaat¹⁵

Rasata refers to Ama which is carried in upward direction by the vata and gets lodged in pranavaha srotas leading to the obstruction in airways. Various study conducted showed that repetitive microaspiration of gastric contents and/or vagal nerve induced bronchospasm from gastric acid irritation of the esophagus due to GER may contribute to the exacerbation of various respiratory diseases, particularly asthma and chronic obstructive pulmonary disease¹⁶.

2. **Vyayama /Ayasa:** Vyayama can exacerbate the attack of shwasa in susceptible individuals. Vyayama or ayasa i.e., walking for longer distance and strenuous exercise demands for more oxygen consumption. Since COPD presents with reduced ventilation perfusion ratio, exercise causes increase in PCO₂ and decrease in PO₂ thus leading to manifestation of air hunger.

3. **Rukshanna Bojana:** It is one of the cause for Pranavaha Srotodushti¹⁷. Rukshanna Bojana aggravates vata which becomes samavayi karana for the manifestation of kasa by causing dhatu kshaya.
4. **Vijjala, Utkledi:** These qualities in food increases the kleda guna of kapha and it is abhishyandikaraka. It tends to increase the production of mucus plugs in respiratory tract which leads to cough for mucus clearance.
5. **Vimargagamana Of Bojana:** Vimargagamana of Bojana into the pranavaha strotas i.e., respiratory tract, stimulates vagal nerve endings leading to the manifestation of cough. Here cough works as a preventive mechanism in checking the entry of foreign particles into the pranavaha strotas.
6. **Kshavathu Vegadharana:** Kshavathu(Sneezing) is a preventive mechanism which expels out the foreign particles entering into the tracheobronchial tree through nose. If Kshavathu is prevented i.e., by kshavathu vegadharana, the foreign particles easily enters into the Pranavaha strotas and causes Kasa.
7. **Katu, Kashaya, Asathmya, Paryushitashana:** Indulging in such type of ahara does not nourish the body but leads to depletion of dhatus which in turn aggravates the vata.
8. **Amla, Lavana, Ushana Ahara:** These ushna veerya pradhana dravyas causes the liquification of grathita kapha in pranavaha srotas leading to the prakopa of kapha. This leads to kasa, a mechanism for airway clearance.
9. **Vegaudeerana And Ratrijarana:** These two factors aggravate vata which

is main dosha in the manifestation of disease.

10. **Vegadharana:** It is one of the cause for pranavaha srotodusht¹⁸. It leads to vridhi and pratiloma gati of apana vata leading to udavarta. Udavarta act as nidanartakara roga for Kasa¹⁹.
11. **Guru, Madhura, Snigda, Abhishyandi:** Indulging in guru, madhura, snigda, abhishyandi ahara like sea foods, Curd, lemon, spinach, some fatty fish, bananas, grapes, pomegranates, berries, custard apple, ice creams, etc... aggravates kapha causing agnisada. Because of this, ahara rasa is not digested properly causing Amarasa in Amashaya. As a result of which rasa dhatu is not properly formed. This causes large quantity of gunatah and dravyatah vridhi of kitta bhaga of rasa dhatu ie., Mala rupi Kapha(excess mucus production from submucosal glands and goblet cells). Mala rupi Kapha dosha thus formed, aggravates in all over the body and also localizes in pranavaha srotas, thus producing the symptoms of Kaphaja Kasa.

The kapha prakopaka nidanas mentioned in classics can be considered as Vyabhichari hetu. These predispose an individual to develop COPD and can be considered as dosha hetu. Raja and Dhuma are

Vayu impeded from below(अधःप्रतिहतो वायुः), → moves to the upper channels (उर्ध्वस्रोतः समाश्रितः) → attains the character of the udana vata and sticks in throat and chest(उदानभावमापन्नः कण्ठेसक्ततथोरसि). → further it advances to all the orifices of head and filling them (आविश्य शिरसः खानि सर्वाणि प्रतिपूरयन्) → producing breaking pain and jerking in whole body (आभञ्जन्नाक्षिपन् देह) particularly causing strain and stiffness in hanu, manya, akshi, prushta, ura parshwa. → Thus cough arises(शुष्को व सकफो वाऽपि).

In Charaka samhita, vishesha samprapti of kaphaja kasa is also mentioned. During this process, the vitiated kapha causes obstruc-

Pradhnika hetu which directly lead to COPD and can be considered as Vyadhi hetu.

CRITICAL ANALYSIS OF SAMPRAP-TI OF KAPHAJA KASA

Samanya samprapti which is explained in the classics refers to the mechanism of Kasa²⁰. In Ashtanga sangraha, involvement of Apana vata is mentioned in the manifestation of kasa. Vata gets vitiated by any of the causative factor leads to Dhatu kshaya or avarana to the vata. Avarana may be due to pitta, kapha or sankocha of srotas. Apana vata thus obstructed from moving in downward direction, attains the pratiloma gati and reaches rasa sthana, causing discomfort in the chest region. Hridaya, being the common mula sthana for both rasavaha and pranavaha srotas, gets vitiated and in turn vitiates pranavaha srotas. Apana vata also combines with Udanavata in uras, fills up the passages of the throat, makes for violent movement of eyes, back, chest and flanks, producing pain in these comes out of the open mouth, producing sound like that of broken bronze vessel. Here, pratilomagati of apanavata initiates the samprapti. But when it combines with udanavata, then it will lead to manifestation of kasa.

According to Charaka Samhita,

tion (avarana)to the marga of pranavata leading to Kaphaja kasa producing ghana, snigdha, bahala shleshma. Based on the ex-

tensive observation regarding the pathogenesis of Chronic Bronchitis, it is recognized that the cause of cough in patients with chronic bronchitis is multifactorial. Airway inflammation and excessive bronchial secretions which is a complex mixture of watery secretions (water, ions, and soluble mediators), inflammatory cells and secreted mucins are likely to activate the afferent limb of the cough reflex. When airflow obstruction is present, it often leads to an ineffective cough as a result of decreased expiratory flow and this coupled with impaired mucociliary clearance results in the further retention of secretions and a vicious cycle of Chronic recurrent coughing.

SAMPRAPTI ON THE BASIS OF SHADKRIYAKALA:

1. Sanchaya:

- चयो वृद्धि स्वधाम्नेव²¹।

Sanchaya represents the inceptive stage of disease when the doshas are stagnated in their own natural abode. Indulging in etiological factors like guru, madhura, snigda, abhishyandi ahara like sea foods, Curd, lemon, spinach, some fatty fish, bananas, grapes, berries, custard apple, ice creams, etc... aggravates kapha in amashaya causing agnisada. Because of this, ahara rasa is not digested properly causing Amarasa. As a result of which rasa dhatu is not properly formed. This leads to the formation of large quantity of kitta bhaga of rasa dhatu i.e., Mala rupi Kapha. Raja (dust) and dhuma (Smoke) entering through nasa has the direct impact on pranavaha strotas i.e., Cigarette smoking and exposure to air pollutants cause irritation in the respiratory epithelium. It causes release of inflammatory mediators such as IL-8 (a potent neutrophilic chemoattractant), iNO etc leading to the inflammation in respiratory epithelium.

2. Prakopa:

- कौपस्तु उन्मार्गगामिता²²
 - उन्मार्गगामिता स्वमार्गात् अन्येन मार्गेण गमन्²³।
Prakopa means a stage where the morbid doshas leave their natural abode. It means prakupita kapha starts spreading in its other seats such as kanta, shira, uras and rasa dhatu. Further indulging in Kapha prakopa nidana, cause Mala rupi kapha formed to accumulate in other sites like kanta, shira and uras²⁴. And also, continuous exposure to dhuma i.e., smoke causes enlargement of mucus secreting glands and increase in number of goblet cells. It also leads to the destruction of mucociliary blanket and epithelial barrier due to its ciliotoxic action. Thus leading to the accumulation of large quantity of mucus in larger bronchi owing to the hypersecretion and improper clearance of mucus.
3. **Prasara:** In Prasara Avastha, the dosha spreads and extends to other parts, organs and structures of the body. Sushruta says that in this avastha the vitiated doshas expand and overflow the limits of their respective locations. A low grade systemic inflammatory response is evident in smokers. Long term smoke exposure can result in systemic oxidant-antioxidant imbalance as reflected by increased products of lipid peroxidation and depleted levels of antioxidants like Vit A and C in plasma. Also there will be elevated levels of CRP, fibrinogen, IL-6 and WBC²⁵.
 4. **Sthanasmshraya:** This stage is characterized by the localization of the vitiated

dosha which, marks the beginning of diseases specific to those structures. Dalhana in his commentary explains this stage as the one in which the vitiated doshas having extended and spread to other parts due to Srotovaigunya or Pathological involvement of the related srotas leading to the interaction between the Doshas and the Dushyas. This take place at the Srotas level and represents the prodromal phase or Phase of Purvarupa. Raja and dhuma produces Khavaigunya in Pranavaha Srotas leading to the pranavaha srotodushti i.e., Raja and dhuma makes it susceptible for the manifestation of the disease. Hence vata moving all over the body along with the kapha and rasa dhatu localizes in Pranavaha srotas. Here sammurchana of dosha and dhatu i.e., Pranavata, Udanavata, Avalambaka Kapha and Rasa dhatu takes place resulting in manifestation of prodromal symptoms such as Itching in the throat, hoarseness of voice etc...

5. **Vyakta:** Vyaktavasta is the stage in which all the signs and symptoms manifests. Here various signs of a disease are evident to comprehend the ongoing pathology. Pratyatma lakshana of Kaphaja Kasa which includes Kasa with gana, snigda, bahala kapha, along with other symptoms ie., Kapha purnadeha, Asya madhurya, Utklesha, Gourava Lomaharsha etc...are seen. This is the stage which presents with the airway remodeling ie., hypertrophy and hyperplasia of mucus secreting glands, inhibition of function of alveolar macrophages which leads to the inadequate scavenging and deposition of particulate matter in alveo-

li leading to fibrosis. Partial paralysis of cilia leads to inadequate mucus clearance and bacteria leading to the accumulation of mucus in respiratory tract which causes persistent cough with copious sputum production and recurrent infection.

6. **Bheda:** This stage marks the chronicity of the disease where it becomes subacute or incurable. This is the stage of upadrava (complication) or Sequelle.
- कासवृद्ध्या भवेत् श्वासः पूर्वोर्वा दोषकोपनैः²⁶
 - Commentary: श्वासः कासस्य वृद्ध्या भवेत्।

Aggravated Kasa, if not treated will lead to Shwasa as both diseases share the similar etiological factors i.e., Smoking and involvement of doshas ie., Vata and Kapha. Chronic Bronchitis, over a period of time, gets complicated by Emphysema²⁷. Vata get invariably associated in the chronic stage of kasa leading to dhatu kshaya which can be considered as severe weight loss and permanent dilatation and destruction of alveolar walls leading to the Emphysema.

CONCLUSION

- Though cough is considered as just a symptom in modern science but it is considered as diasee in ayurveda.
- Types of the Kasa can be understood on the basis of nature of cough and sputum production. Kaphaja Kasa can be corelated to Chronic bronchitis based on Nidana, samprapti and lakshana.
- First and foremost nidana told by our acharyas for the manifestation of kasa is raja and dhuma which initiate the pathological process in pranavaha samprapti and even Chronic bronchitis manifests in those who are

chronic smokers and because of continuous exposure to dust at work.

➤ Kaphaja Kasa is caused by the vitiated kapha causing obstruction (avarana) to the marga of pranavata leading to manifestation of Kaphaja kasa producing ghana, snigdha, bahala shleshma. Based on the extensive observation regarding the pathogenesis of Chronic Bronchitis, it is recognized that the cause of cough in patients with chronic bronchitis is multifactorial. Airway inflammation and excessive bronchial secretions which is a complex mixture of watery secretions (water, ions, and soluble mediators), inflammatory cells and secreted mucins are likely to activate the afferent limb of the cough reflex. When airflow obstruction is present, it often leads to an ineffective cough as a result of decreased expiratory flow and this coupled with impaired mucociliary clearance results in the further retention of secretions and a vicious cycle of Chronic recurrent coughing.

➤ Distinguishing feature of Kaphaja Kasa is Kasa with prabhuta Ghana. Snigdha, bahala kapha lakshanas. Even Chronic Bronchitis is a clinically defined as the condition characterized by Chronic Cough with Expectoration for atleast 3 months of the year for more than 2 consecutive years

➤ Hence Chronic Bronchitis can be understood in terms of Kaphaja Kasa

➤ Chikitsa of Kaphaja Kasa holds good in the treatment of Chronic Bronchitis. The clinical trial on the same has been undertaken and the study has proven to have good result in Chronic Bronchitis²⁸.

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