



## Research Article

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### EVALUATION OF DIET, LIFE STYLE AND STRESS IN THE ETIOPATHOGENESIS OF CONSTIPATION IN GERIATRIC PEOPLE

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#### ABSTARCT

Diet, lifestyle and mental status are known to play pivotal roles in the occurrence of many chronic diseases. Constipation is one amongst them, which is the commonest complain and significant healthcare problem especially in elderly that increases with age and affect ones physical and mental wellbeing. It is the premonitory symptoms of many existing or forthcoming diseases. In the present study, the survey of elderly patients with constipation has been done to evaluate the patterns of dietary habits, life style and mental health along with their relationships with risk factors for constipation in Saurashtra region of Gujarat especially in the Jamnagar city. Data shows that the majority of the patients were male. Of all the respondents, stress, sedentary lifestyle, lack of exercise, and ruksha (dry), sheeta (cold) diets, bad eating habits like vishamashana (irregularity in time and quantity of meal), viruddhashana (incompatible diet) were found to be linked to constipation. The elders reporting constipation had tension, anxious mood, depressed mood, disturbed sleep and delayed onset of sleep.

**Keywords:** Vibandha, Constipation, diet, lifestyle, stress, aging

#### INTRODUCTION

In the present era, human beings became very irregular in their life style. Especially the life style of urban society is becoming very fast and stressful. These circumstances frequently lead the people towards irregular and bad habits of Ahara (diet), Vihara (life style) with the suppression of natural urges and creating many GIT problems. Constipation is one amongst them. Elders may falsely believe that constipation is a “natural” part of aging<sup>1-4</sup>. Actually, it is a disorder not caused by aging itself. Although age-related anatomic changes like intestinal wall atrophy, reduced blood supply, and intrinsic neuronal changes within the lower gastrointestinal tract may contribute to delayed transit time and decreased stool water content<sup>5</sup>. All these changes are due to morphological atrophy of mucosa, intestinal glands, and muscularis in normal aging process<sup>6</sup> which leads to disturbances of generalized muscle tension, decreased interstitial motor activity and decreased intestinal motility which ultimately cause constipation<sup>7</sup>.

Constipation (Vibandha) is not described as a separate disease entity in Ayurveda. However, symptoms of Udavarta (retention of feces, flatus, urine) like-Anaha (obstruction), Adhman (distension), Malavastambha (hardness of feces) due to the pratiloma gati (reverse flow) of Apana Vayu (one subtype of biological humor of vata dosha) share some of the condition like vibandha (constipation)<sup>8</sup>.

There are so many causative factors for the constipation but it can be broadly classified into three categories – (a)

Dietary habits (b) Lifestyle disorders and (c) Mental factors (stress). But other common causes like - ano-rectal disorders, colonic disorders, pelvic causes, neuromuscular causes, metabolic, drug induced and medical causes, IBS, reduced motility, older age, female, less education, low calorie diet, African-American also plays role in causing constipation.

Chronic constipation in the elderly is often caused by decrease in fiber containing foods, inadequate fluid intake, lack of physical activity, and loss of bowel muscle tone. Relatively little is known about how aging affects the bioavailability of vitamins and minerals, although increasing fiber intake may negatively affect the bioavailability of calcium and zinc. According to Ayurveda, Purisha Vega Vidharana (withholding the urge to defecate), excessive Ruksha ahara- vihara and Vata aggravating factors like Chinta (worry), Shoka (grief), krodha (anger), bhaya (fear), dukha (sadness) are the causative factors for Vibandha (constipation)<sup>8</sup>.

#### Dietary Factors

People who eat a high fiber diet are less likely to become constipated. A diet low in fiber or a diet high in fats is commonly associated with constipation. Fiber is a complex carbohydrate that often contains vitamins and minerals. Soluble fibers (pectins and gums in fruits, vegetables and oat bran) either expand or dissolve in water. They form bulk in the small intestine and are digested in the large intestine by bacteria. Insoluble fibers (cellulose, lignin and some semicellulose found in wheat, wheat bran, corn bran and fibrous vegetables) pass through the small intestine and form much of the bulk in

the large intestine by holding water effectively, resulting in a larger stool and speeding transit time through the colon. Fibrous foods especially cellulose and other insoluble fibers are important in preventing constipation. Since fibrous substances are poorly digested and remain in the lumen of the gastro intestinal tract, they form viscous, gel like substances, hold minerals loosely, and tend to bind chemical compounds. These properties result in significant interaction with nutrients that affect metabolism. However, all types of bran or fiber affect gastrointestinal motility or transit time in the same way, and their effectiveness may be altered by pathological disorders. Research has not yet demonstrated that a low fluid intake causes constipation or that an increase in orally ingested fluids alone effectively treats constipation. Nonetheless, many individuals report relief of their constipation with an increase intake of oral fluids. Orally ingested liquids are believed to add fluid to the colon and bulk to stools, making bowel movements softer and easier to pass. However, caution may be exercised, as beverages containing caffeine such as coffee, soft drinks and alcohol are likely to worsen one's symptoms by promoting dehydration. As the thirst sensation decreases with the age, elders should resolve to drink 6 to 8 ounce glasses of non caffeinated, non alcoholic liquids daily.

#### **Lifestyle factors**

Exercise is believed to shorten the transit time through the gastrointestinal tract and thus enhance evacuation of stool. But in other way, lack of muscle tone as a result of inactivity decreases the facilitative function of the abdominal and pelvic floor musculature in evacuating the stool. There are several types of exercises that can enhance bowel function, such as walking, pelvic tilt, leg lift, lower trunk rotation, stomach pull, and stationary cycling. However, there is no evidence to indicate that one type of exercise is better than another. Responding to the urge to defecate and establishing a daily pattern as well as privacy and allowing time for daily evacuation is of utmost importance to prevent the problem of the constipation.

#### **Mental factors**

According to the Ayurveda and modern Medical science, the body and the psyche are very closely inter-related. Any disturbance or malfunctioning of the mental faculties practically affects the majority of the body system. The old age people become totally idle, dissatisfied, intolerant, and restless, having problem in adjusting with the new surroundings. All these factors may lead to chronic stress in geriatric population, which can rewire the brain, making a person vulnerable to anxiety and depression, and disrupts nearly every system of the body including GIT. Among the physical symptoms of GIT, constipation is one of the commonest symptoms of stress in old age people. The GI tract is controlled by a complex network, including the autonomous nervous system (ANS), the CNS, and the enteric nervous system (ENS) that interacts to establish a bidirectional communication between the brain and the gut, the so-called "brain-gut axis". These interrelated feedback circuits can influence brain processes and bowel functions, affecting gut perception, secretions, inflammatory responses, and motility.

The ongoing low-level stress and anxiety suppress the gastrocolic reflex, an unconscious action by the gastrointestinal tract that precedes a bowel movement. The people in the moderate-stress situations, such as weddings, entrance exams, lawsuits, job problems etc. tend to suppress the urge to move their bowels. A truly high stress situation often causes diarrhea that, in turn, disrupts bowel movements and results in constipation<sup>10</sup>. Chronic and sporadic stress disrupts regular bowel movements and contributes to constipation. Adding fiber, fluids, and laxatives to alleviate constipation makes it worse, and perpetuates stress even more. The information on this page will help to break this vicious cycle.

#### **Aims and Objectives**

To evaluate the diet, lifestyle and stress in the etiopathogenesis of constipation in geriatric people.

#### **MATERIALS AND METHODS**

The total of 82 patients, in between 50-80 years of age attending the O.P.D. of Kayachikitsa and Roga Nidana and Vikriti Vijnana department OPD, I.P.G.T. and R.A hospital, Jamnagar having complaints of Adhmana (gaseous distension), Anaha (acute constipation), Malavastambha (hardness of feces) etc. as described in Udavarta or with the complains of constipation as mentioned in modern medical literature were surveyed for the present study. The survey study was carried out in Saurashtra region of Gujarat, especially in Jamnagar city.

**Ethical Clearance:** The present study was approved by Institutional Ethics committee vide letter No. PGT/7-A/Ethics/2010-11/1858 dated 1.9.2010.

#### **OBSERVATION AND RESULTS**

The data of 82 patients survey, revealed that the maximum number of patients (71%) were from age group of 50-60 years followed by 60-70 years (21%). The majority of the patients were male (52%), married (95%), hindu (85.61%) and educated (87.8%). The majority of the patients belonged to lower middle class (69.51%). The maximum number of patients were housewives (41.46%) followed by servicemen (18%). The majority of the patients were from urban habitat (73.17%) followed by suburban (12%) and rural area (12%). The 56% patients were addicted to tea, tobacco and cigarette smoking (10%). The maximum number of the patients (39%) reported the chronicity of the disease 0-6 months. All the patients were of dwandvaja prakriti especially of vata kaphaja (46%) and vata pittaja (45%). The 65% of the patients were having kroora koshta followed by madhyama koshta (65%) (Table 1). The majority of the patients had madhyama sara (61%), samhanana (56%), satmya (80.48%) and satva (55%). The symptoms reported by these patients include: Malasanga (obstructive feeling in defecation) (100%), Adhmana (abdominal distension) (84%), Udgarabahulya (excessive eructation) (79%), Shoola (Abdominal pain) (63%), Atopa (gaseous distension) (39%), Anaha (acute constipation) (34%). The data on dietary habits revealed that majority of the patients were vegetarian (79.26%). The 40% patients indulged in kashya rasa followed by katu rasa (27%), amla rasa (20%) and ruksha (67%), sheeta (18%), laghu (18%) dietary stuffs. As far as agni is concerned,

maximum of the patients had Mandagni (66%) followed by vishamagni (32%). The maximum patients had the habits of vishamashana (65%) followed by viruddhashana (27%).

**Table 1: Demographic data**

		No. of patients	Percentage (%)
Age	50 – 60	58	71%
	60 – 70	17	21%
	70 – 80	8	10%
Sex	Female	39	47.5%
	Male	43	52%
Religion	Hindu	71	86.5%
	Muslim	11	13%
Marital status	Married	78	95%
	Unmarried	-	-
	Widow	3	4%
Education	Educated	72	87.8%
	Uneducated	12	15%
Occupation	Housewife	34	41.46%
	Labourer	13	16%
	Service	15	18%
	Retired	9	10.97%
Socio-economical status	Business	8	9.75%
	Lower class	16	20%
	Lower Middle class	57	69.51%
Habitat	Upper Middle class	8	9.75%
	Suburban	10	12%
	Urban	60	73.17%
Prakriti	Rural	10	12%
	Vata Pittaja	37	45%
	Pitta Kaphaja	5	6%
Manasika Prakriti	Vata Kaphaja	38	46%
	Rajasika	71	87%
	Tamasika	11	13%
Chronicity	Chronicity		
	0-6 months	32	39%
	7-12 months	13	15.85%
	1-3 yr	14	17%
Koshtha	3-5 yr	23	28%
	Mrudu	-	2%
	Madhyama	27	33%
	Krura	53	65%

**Table 1: Observations related to diet and life style**

		No. of patients	Percentage (%)
Type of diet	Vegetarian	65	79.26%
	Mixed	10	12%
Rasa dominance	Amla	16	20%
	Lavana	9	11%
	Katu	22	27%
	Kashaya	33	40%
Guna dominance	Laghu	10	12%
	Shita	15	18%
	Ruksha	55	67%
Faulty dietary habits	Vishamasana	53	65%
	Viruddhasana	22	27%
	Adhyasana	5	6%
Agni	Manda	54	66%
	Vishama	26	32%
	Sama	2	2%
Addiction	No addiction	25	30%
	Tobacco chewing / smoking	9	10%
	Tea	46	56%
Exercise	Regular	3	3%
	Occasional	13	16%
	No exercise	62	76%
Sleep	Sound	3	3%
	Interrupted	12	18%
	Disturbed	49	60%
	Delayed	16	20%

**Table 2: Chief complaint wise distribution**

Chief Complaints	Total	Percentage (%)
Adhmana	69	84%
Udgara bahulya	65	79%
Shoola	52	63%
Atopa	32	39%
Anaha	28	34%
Malasanga	82	100%

**Table 3: Observations related to Hamilton Anxiety Rating Scale**

Symptoms	Total	Percentage (%)
Anxious	58	70.73%
Tension	60	73%
Fear	19	23%
Insomnia	49	59.75%
Intellectual cognitive	28	34%
Depressed mood	58	70.73%
Somatic behavior	23	28%

**Table 4: Observations related to Hamilton Rating Scale for Depression**

Symptoms	Total	Percentage (%)
Depressed mood	58	70.73%
Guilt Feeling	21	25%
Suicide feeling	6	7%
Insomnia	49	59.75%
Retardation paranoid	17	20.73%
Agitation	29	35%

The 44% patients were having Avara abhyavaharana shakti and Avara jarana shakti (60%) (Table 2). The data on life style revealed that most of the patients were indulging in sedentary lifestyle like not doing exercise (76%). Maximum patients had sleep disturbance like disturbed sleep (60%), delayed onset (20%), interrupted sleep (18%) (Table 2)

While evaluating the mental health of these patients it was found that maximum patients were of Rajasika prakriti (87%) followed by Tamasika prakriti (13%) (Table 1). To determine the influence of stress on the individual Hamilton Anxiety and Depression Rating Scales were adopted. Assessment of Hamilton Anxiety Rating Scale (HAM-A) revealed that maximum patients were having tension (73%), anxious mood (70.73%), insomnia (59.75%) (Table 4) whereas assessment of Hamilton Rating Scale for Depression (HAM-D) shows that majority of the patients were feeling depressed mood (70.73%), guilt (25%), agitation (35%) and suicidal thoughts (7%) (Table 5).

## DISCUSSION

The majority of the patients were from the age group of 50-60 years. The people of this age group not only face many burdens of the life, encountered by the young but also come across many socio-economic crises which are specifically associated with this age group, including the retirement, death of friend or spouse, loss of income and deteriorating health. The toll which these crises bring about may be reflected in impaired bowel function. Moreover, age-related neurodegenerative changes in the enteric nervous system (ENS) may be the key to functional changes observed with the advancing age. In the colons of people older than age 65, a 37% loss of enteric neurons was found when compared with younger people<sup>11</sup>. A study reported that the total number of neurons decrease in older individuals. Both collagen and

elastic system fibers are more numerous in the ganglia in the older participants over the age of 65 compared to age group of 20-35. The decrease in neuron density with age is accompanied by an apparent increase in the fibrous components of the myenteric ganglia. These findings suggest that neurodegenerative changes may contribute to the disturbed colonic motility seen in the aging population. The women in particular, experience a larger decrease in squeeze pressure with ageing especially after menopause and due to injuries sustained during vaginal delivery. These changes increase both the risk and the potential for constipation in women but in the present study the ratio found was M>F which may be the representation of the patients of the hospital.

The majority of the patients in the present survey were educated. The educational status does not have any direct relationship with the disease. But it could be a chance, not a positive sign, because education is always a preventive factor, not the causative factor. The educated people in city usually consume more fast food and junk foods due to lack of time and most of them remain engaged in their sedentary types of work. Housewives are generally under stress and strain due to various domestic and social problems. In Jamnagar most of the house wives are into some occupations like knitting, weaving or tailoring etc. apart from their daily household activities, which means, they do sedentary type of job for long duration of time, because of which they suffer from this disease. More incidences of constipation is found in employed persons, may be due to lack of time, mental stress, due to the official work pressure from the higher officials.

The urban life style appears to be correlated with increase in prevalence of this disease, because usually it is seen that, the fast and busy life of cities seldom allow the person to follow their daily dietetic and behavioral regimen properly. Moreover, in the city everything is available instantly right from magi to pizza and the taste bud of the urban people are well acquainted with these kinds of fast foods which in turn may lead to vitiation of Doshas and impairment of Agni, thus causing various apana vaigunyajanya vyadhis like constipation. Due to busy schedule they are always irregular in Ahara and Vihara habits with habitual suppression of the natural urges. It is also given in the classics that these kinds of people are always prone to this type disease.

The maximum patients were having addiction of tea and Tobacco/Cigarette smoking habits, which is also one of the main causes for constipation. Usually in the jara avastha, due to dominance of vata, koshtha becomes krura and very prone to constipation. The 39% of the patients were having the chronicity of disease from 0-6 months. Initially, the patients do not care about the mild symptoms of Vibandha and go for self medications of laxatives, digestive, appetizer etc from the OTC, once prescribed by the physician. Due to the use and abuse of these types of drugs, there will be temporary relief of the symptoms, hence the patient attend the hospital lately. Moreover, this disease is chronic in nature because patients usually indulge in apathy sevan due to Jihvalaulya. A large number of symptoms has been attributed to the

constipation including Malasanga, Adhmana, Udgarabahulya, Shoola, Atopa, Anaha etc. Although some of these symptoms may be psychological in origin, most are generally seen as being due to distension and mechanical irritation of the rectum and have been reproduced by packing volunteers' rectum with cotton wool<sup>12</sup>.

The maximum numbers of the patients i.e. 67% reported the intake of Ruksha Guna ahara; Katu rasa (27%) and Amla rasa (20%) dominant diet which increases vata dosha. Ruksha guna is the principal guna that aggravate the Apana vayu in the proximal colon. The shoshana karma of the ruksha guna is the first reaction of the Apana vata to the available matters of the small intestine. The functional disturbance of the sheeta and chala guna can be initiated by ruksha guna. The excess shoshana karma or intense rukshata defacilitate the vikshepana karma of the chala guna and facilitate more stambhana karma of the sheeta guna. The maximum number of the patients had Mandagni and vishamagni and followed vishamashana and virudhasana diet habits which are the prime Nidana for Agnivaishamyata.

Most of the patients were leading a sedentary life style and not doing any exercises. Lack of the muscle tone as a result of inactivity, decreases the facilitative function of the abdominal and pelvic floor musculature in evacuating stool and causes constipation. The inactivity impairs the bowel function for reasons which are not clear. The research shows that the debilitated geriatric long stay patients have markedly greater intestinal transit time than active old people<sup>13</sup>. The maximum patients had sleep disturbance like disturbed sleep, delayed onset etc. which may vitiate the Apana Vata and Apanavaigunya with Ruksha Guna dominancy. Because, these factors by vitiating Vata and indirectly through Manas, affect the proper functioning of Apana Vata.

The majority of the patients had anxiety, depression and tension. Utpatti of Apana vega depends upon the state of psyche and vice-versa. Moreover, the stress reduces the effectiveness of the mucus barrier in the gut. This barrier protects against harmful microbes and when it is weakened, pathogens invade the gut and the beneficial gut bacterias are killed. These beneficial bacteria produce short-chain fatty acids that are crucial fuel for the gut and help prevent constipation<sup>14</sup>.

Thus, Avyayama, Vishamasana, Utkarasana, Ratrijagarana, excessive consumption of tea, coffee, junk foods, Adhyasana, Viruddhasana has become a daily routine, leading to the formation of the Ama or disturb the Agni, and create avaran of the vayu which further cause pratiloma gati Apana vayu and ultimately leads to Vibandha. Following such life style usually causes decreased secretion of digestive enzymes causing improper digestion, decreased peristaltic movement leading to stagnation of semi-digested food and leads to vibandha or constipation and the symptoms like Udgara bahulya, Adhmana, Hridaya Uparodha are raised. Some amount of gas is absorbed in blood and arise the symptoms like headache, nausea, vertigo etc. and a sense of discomfort is felt physically and mentally.

## CONCLUSION

The survey reveals that the dietary stuffs predominant in kashaya (astringent), katu (pungent) and amla (sour) rasa (taste) with ruksha (dry), sheeta (cold) and laghu (light) guna (properties) and the faulty dietary habits like viruddhashana (incompatible diet), vishamashana (irregularity in time and quantity of meal), physical inactivity with alteration in mental well being viz. anxiety, depression, insomnia etc. leads to disharmony between brain gut axis which ultimately causes functional changes in the enteric nervous system particularly with advancing age in combination with neurodegenerative changes in geriatric people causing disturbed colonic motility which ultimately leads to constipation.

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