

CONSTIPATION (QABD) AND ITS MANAGEMENT AND ROLE OF DIETARY FIBER IN ADULT: A COMPREHENSIVE REVIEW.

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Abstract

Constipation is defined as the infrequent passage of stools or difficulty with evacuation of stools. Constipation can be classified as primary or secondary, and primary constipation can be further divided into slow transit constipation or outlet obstruction. The diagnostic workup involves focused lab tests and structural evaluation, followed by a therapeutic trial of fiber and laxatives, and finally, specialized tests. Treatment can consist of dietary changes, medications, physical therapy, and possibly surgery in refractory cases. It is associated with various symptoms including hard stools, straining, sensation of anorectal blockage, incomplete evacuation, abdominal discomfort and bloating. The prevalence of constipation is 15% in the general population with a higher female to male ratio and a higher prevalence in the elderly especially over 65 years. This disease poses a great economic burden related to direct health care costs and indirect costs.

Keyword:qabd,dietary fibers,epidemiology,normal transit constipation, I'tiqāl-l-Baṭn, Ḥuṣr, Iḥtibās-l-Baṭn.

INTRODUCTION:

Constipation is a health problem that influences almost 20% of the world's population¹. It is a bothersome disorder which negatively affect the quality of life and increase the risk of colon cancer². There are a wide-range of treatment methods. Life-style modification, such as increased fluid intake or exercise, are usually recommended as first-line treatment, but data on the effectiveness of these measures are limited³. Laxatives are most commonly used for treatment of constipation, but frequent use of these drugs may lead to some adverse effects^{4,5}alternative treatment measure is, therefore, needed. Soluble fiber absorbs water to become a gelatinous, viscous substance and is fermented by bacteria in the digestive tract. Insoluble fiber has a bulking actio⁶. Dietary fiber is the product of healthful compounds and has demonstrated some beneficial effect. Increase of dietary fiber intake has been recommended to treat constipation in children and adults^{7,9}. In a large-population case-control study, Rome found that dietary fiber intake was independently negatively correlated with chronic constipation, despite the age range and the age at onset of constipation¹⁰.

Etiology:

Causes of constipation can be divided into the following broad categories:

Primary or Idiopathic

A diagnosis of exclusion, this category includes constipation due to fecal withholding behaviors. Organic causes have been ruled out. It can generally be divided into the following:

Normal-transit constipation (NTC) - although the transit of the stool through the colon is at a normal rate, it is difficult for patients to evacuate their bowels.

Slow-transit constipation (STC) - is characterized by infrequent bowel movements, diminished urgency, or straining to defecate. In addition, these patients have impaired phasic colonic motor activity.

Pelvic floor dysfunction - is distinguished by impaired musculature of the pelvic floor. Patients often report a feeling of incomplete evacuation, prolonged or excessive straining, or the use of perineal pressure during defecation.

Dietary Causes

Dietary issues that cause constipation include inadequate fiber intake, inadequate water intake, and overuse of coffee, tea, or alcohol. Reduced levels of exercise may also play a role.¹¹

Anatomic Causes

Structural causes of constipation include anal stenosis or atresia, anal fissure, anteriorly displaced anus, imperforate anus, thrombosed hemorrhoids, intestinal stricture, obstructing tumors, and anal stricture.¹²

Abnormal Musculature

These disorders include prune belly syndrome, gastroschisis, Down syndrome, and muscular dystrophy.¹³

Neurologic Causes

Disorders with issues in the neurological structure of the intestine include Hirschsprung disease, pseudo-obstruction, intestinal neuronal dysplasia, spinal cord defects, tethered cord, and spina bifida. Other neurological disorders that could lead to constipation include stroke, Parkinson disease, multiple sclerosis, Chagas disease, and familial dysautonomia.¹⁴

Drugs

Medications contributing to constipation include anticholinergics, narcotics, antidepressants, lead, iron, bismuth, calcium channel blockers, nonsteroidal anti-inflammatory drugs, psychotropic drugs, and vitamin D intoxication.¹⁵

Metabolic and Endocrine Causes

Metabolic or endocrinologic disorders that cause constipation include hypokalemia, hypercalcemia, hypothyroidism, diabetes mellitus (DM), and diabetes insipidus.

Miscellaneous Causes

Other causes of constipation include celiac disease, cow milk protein allergy, cystic fibrosis, inflammatory bowel disease, and scleroderma.

Epidemiology

Chronic constipation is excessively prevalent and affects about 15% of the population in the United States.¹⁶ In 2006, the number of visits to healthcare professionals for constipation reached 5.7 million, and 2.7 million visits listed constipation as the primary diagnosis.¹⁷ Approximately 12% of people worldwide report self-defined constipation; people in the Asian Pacific and the Americas suffer twice as much as the European population.

Constipation can occur in any age group, from newborns to older individuals; overall, it is seen more commonly in females than males. An age-related increase in the prevalence of constipation has been seen, with 30% to 40% of adults over 65 citing constipation as a problem.¹⁸ Also, the nonwhite population has been reported to have a 30% higher prevalence than the white population.^{19,20,21}

In children, the pattern and frequency of defecation depends on age. During the neonatal period and early infancy, bowel movements can occur more than 4 times per day, eventually trending to 1 to 2 per day by toddler age. At this point, children usually have achieved voluntary control of their sphincters.

Pathophysiology

The pathophysiology of constipation is multifaceted and not entirely understood. It involves a complex interplay of factors affecting the gastrointestinal tract, nervous system, and pelvic muscles. Common contributors include reduced colonic motility, delayed transit of stool, impaired rectal sensation, and ineffective coordination of pelvic floor muscles during defecation.

These issues can result from a variety of causes, including:

- Low fiber diet
- Poor dietary habits
- Lack of fluid intake
- Caffeine abuse
- Overuse of alcohol
- Medications
- Sedentary lifestyle
- Endocrine disorders (hypothyroid)
- Neurologic disease (neuropathy)
- Psychological issues.^{22,23}

Symptoms and signs of constipation: Constipation basically is a subjective condition. This is why the most important tool for diagnosis of Constipation mostly depends upon the childhood and adult. Constipation are irregular bowel activity with excessive foul smelling, flatulence and stools with texture. Sometimes patients may present with history of passage of small pellets or less frequent large amount of stools and painful defecation with holding or straining at stools, soiling or overflow. Abdominal Distention or discomfort, decreased appetite, easy fatigability and irritable mood are few other symptoms.²⁴

Differential Diagnosis:

Differential diagnosis of constipation is extensive and inclusive of:

- Abdominal hernias
- Anal fissure
- Anorectal malformations
- Anxiety disorders
- Appendicitis
- Chagas disease (American trypanosomiasis)
- Colorectal cancer
- Colonic obstruction
- Crohn disease
- Depression
- Diverticulitis
- Dysfunctional voiding
- Hirschsprung disease
- Hypopituitarism (Panhypopituitarism)
- Hypothyroidism
- Ileus
- Internal anal sphincter hypertonicity or achalasia
- Intestinal motility disorders
- Intestinal obstruction
- Irritable bowel syndrome (IBS)
- Large bowel obstruction
- Multiple endocrine neoplasia type 2 (MEN 2)
- Ogilvie syndrome
- Pelvic floor dyssynergia
- Pelvic/rectal masses
- Peritonitis and abdominal sepsis
- Rectal prolapse
- Rectocele
- Toxic megacolon

A diagnosis of functional constipation can be made using Rome IV diagnostic criteria revised in 2016.

Adult Rome IV criteria establish a functional constipation diagnosis when a patient has experienced 2 or more of the following over the preceding 6 months:

Fewer than 3 spontaneous bowel movements per week

Straining for more than 25% of defecation attempts

Lumpy or hard stools for at least 25% of defecation attempts

Sensation of anorectal obstruction or blockage for at least 25% of defecation attempts

Sensation of incomplete defecation for at least 25% of defecation attempts

Manual maneuvering required to defecate for at least 25% of defecation attempts

Additionally, the patient must rarely have loose stools present without using a laxative and must not meet Rome IV criteria for irritable bowel syndrome (IBS).

Treatment / Management:

Management of Constipation:

Lifestyle Modifications: Dehydration and decrease in physical activity are found to worsen, so different studies recommend adequate Hydration and increase in physical activity.

High fiber diet is found to be beneficial for Constipation. The ideal amount is 25-35 grams per day. Fiber adds bulk to stools and makes bowel movements soft or firm. To improve compliance with treatment, patients should be instructed to increase their dietary fibre intake gradually to 20- 25 grams per day over a period of 1-2 weeks. If this approach is not effective. Commercially packaged fibre supplements should be tried. Regular bowel habits, careful use of laxatives, and control of medications, including dosage and timing are also effective for Constipation.²⁵

Treatment:

Current laxatives edification by decreasing stool consistency (softening and/or artificially or indirectly stimulating Colon motility, via one or more of a number of mechanisms. Well-designed placebo-controlled blinded clinical trials of older laxatives are sparse. Although many trials report improvements in the number of bowel movements per week and some report improvements of certain symptoms, many studies are small and lack Comprehensive, clinically relevant treatment and points. Similarly, there is a lack of head to head comparisons. Hence, there is a lack of evidence to determine whether one executive class is superior to another. It is also largely unknown if laxative treatment address the impaired quality of life observed in patients with chronic constipation as more studies have failed to assess quality of life majors. Indeed, for some patients, laxatives can worsen certain symptoms, such as bloating and flatulence ^{26,27}.

Unani Concept

INTRODUCTION:

In Unani medicine, "Qabḍ" (also known as I'tiqālāl-Baṭn, Ḥuṣr, Iḥtibāsāl-Baṭn, Iḥtibāsāl-Ṭabī'a, I'tiqālāl-Ṭabī'a, Imsākāl-Baṭn, and A'tiqaal) refers to the condition of constipation. The term "Qabḍ" originates from the Arabic word meaning "to hold on" or "to grasp," similar to the word "amsak," which translates to "miser" in English. This comparison is drawn because just as a miser hoards wealth and is reluctant to spend it, the intestines hold onto stool and release it with difficulty. Even when forced, the miser spends only a minimal amount, similar to how the intestines may release stool only with great effort.²⁸

In Unani medicine, "Qabḍ" is specifically defined as a decrease in the function of the large intestine. There are three recognized forms of Qabḍ:

Delaying defecation when the urge arises

Reduction in the quantity of stool passed

Straining during defecation

According to Buqrat, both the softening and hardening of stool are unfavorable.²⁸

In children, an increase in moisture (Rutūbat) can lead to a decrease in vital functions, and reduced bile secretion into the intestines which can also lead to constipation.²⁹ In developed countries, millions of people suffer from this condition, children, women, and the elderly being more affected.³²

Some physicians believe that chronic constipation is caused by an excess of black bile (Sawdā) in the body. Therefore, treating constipation by addressing the excess Sawdā is considered important.³¹

Females are more predisposed to constipation than males especially during pregnancy.³³

CAUSES:^{28,30}

Constipation, according to Unani medicine, can arise from various factors, depending on the strength of the intestines, the proper movement of food, and the power of excretion. A primary cause of constipation is weakness in the intestines.

Causes of Intestinal Weakness:

1. Congenital or Hereditary Factors:

Some individuals may be born with or inherit a predisposition to weak intestines, leading to constipation.

Age-Related Factors: With advancing age, the intestines may weaken, resulting in constipation.

2. Temporary Causes:

Fevers and Acute Conditions:

Temporary illnesses can weaken the intestines and lead to constipation.

Anemia:

A deficiency of red blood cells can cause general weakness, including in the intestines.

Melancholia:

A state of deep sadness or depression can negatively impact digestion and lead to constipation.

Neurological Conditions:

Weakness in the nerves, paralysis, palsy, or flaccidity can disrupt bowel movements, causing constipation such as multiple sclerosis.

Local Causes:**Flatulence:**

The build-up of gas can lead to abdominal distension, making it difficult to pass stools.

Inflammation (Ghisha-e-Mukhati Ka Nazla):

Inflammation of the mucosal lining can interfere with normal intestinal function, leads to constipation.

Other Contributing Factors:**Stimulants of Excretion:**

Food acts as a primary stimulant for excretion. A reduced quantity of food and dry foods, decreases the stimulation needed for proper bowel movements.

Dietary Factors:

Protein-rich foods, foods high in carbohydrates, low fluid intake, and bulky foods can all reduce the stimulation of excretion.

Digestive Efficiency:

Some individuals have an increased power of digestion and absorption, resulting in less waste material and consequently, reduced excretion.

Liver and Gall Bladder Diseases:

Diseases that reduce bile production can lead to constipation, as bile acts as a natural stimulant for excretion in Unani medicine.

Ignoring the Urge to Defecate:

Continuously avoiding the urge to defecate can diminish the sensation, leading to chronic constipation.

Reluctance to Use Unfamiliar Restrooms:

Hesitance or reluctance to use restrooms in unfamiliar places, such as offices or schools, along with the unavailability of facilities, can contribute to constipation.

Physical Obstructions:

Narrowing of the intestinal lumen due to healing ulcers, or compression caused by uterine congestion or inflammation, can lead to constipation.

Pregnancy and Obesity:

Pregnancy, obesity, and the use of a tight tourniquet on the back are also known causes of constipation.

Mental Overexertion:

Intellectual strain can redirect blood flow to the brain, reducing the supply to the digestive system and leading to constipation.

Muscle Weakness:

Weakness in the abdominal muscles, respiratory muscles, and perineal muscles can impair the process of defecation, leading to constipation.

Safrā and Balgham:

In cases of excessive accumulation of Safrā, waste material may dry up in the intestines, causing hard and dry stools. Additionally, thick and sticky phlegm (Balgham) can coat the mucous membrane of the intestine, obstructing the passage of stool.

CLINICAL FEATURES:

- Rectal Heaviness: A sensation of heaviness or fullness in the rectum.
- Pruritus Ani: Persistent itching around the anus.
- Anorectal Varicosities: Engorgement of veins in the anus and rectum, potentially leading to hemorrhoids.
- Thigh and Calf Pain: Pain in the thighs and calf muscles, possibly due to compression of pelvic nerves, which may be related to chronic constipation or impacted stools.
- Gastrointestinal Symptoms: Flatulence and belching, often accompanied by changes in tongue color (whitish or brownish coating).
- General Malaise: Symptoms of low mood, lethargy, and headache, potentially related to underlying gastrointestinal or systemic condition

COMPLICATIONS:^{28,32,}

- Hepatic Diversion of Toxins: Accumulation of morbid matter leading to increased burden on the liver.
- Bowel Obstruction: Partial or complete obstruction of the intestines.
- Colitis: Inflammation of the colon, which may be due to infection, inflammatory bowel disease, or other causes.
- Ulceration: Presence of ulcers in the gastrointestinal tract, potentially affecting the stomach or intestines.
- Anemia: Reduced red blood cell count or hemoglobin, potentially due to impaired liver function.
- Dyspepsia: Indigestion or discomfort in the upper abdomen, often associated with nausea, bloating, or belching.
- Rectal Prolapse: Protrusion of the rectal wall through the anus.
- Hemorrhoids: Swollen and inflamed veins in the rectum and anus.

- Incomplete Defecation: A feeling of unsatisfactory bowel emptying after defecation.
- Scybalous Stools: Passing of hard, pellet-like stools, often indicative of severe constipation.

Management of Constipation in Unani Medicine:

Ilājbi'l-Tadbīr (Regimenal therapy)

It is advisable to avoid erratic medication instead try to heal through natural and traditional remedies on the basis of Asbāb Sitta Ḍarūriyya

Water:

It is written in Unani literature that Ma'ulkadr and Ma'ul Namkeen causes constipation. Ma'ul Naushadri is ma'eenshikam. Warm water helps in relieving constipation.³⁵

Foods:(Ghidhā')

Diet should be adequate in quantity and should not be dry neither by bi'lFi'l nor bi'lQuwāRice causes constipation and therefore avoided.²⁸As per Sheikh ul Raees Abu Ali Senna, the retention of food in stomach depends upon the quality of food itself like Afis, GhalīḍwaLazij foods stay for longer time in intestines and can result in constipation.²⁹Avoid fried foods, spicy foods, confectionaries,³⁴Aample amount of vegetables (spinach, fenugreek, beet root, carrot etc) and fruits (papaya, mango, fig, raisins, grapes, melon etc). Avoid meat and carbohydrate rich foods. Inclusion of wheat in diet is recommended.

Bodily movement and repose (Al-Ḥarakawa'lSukūn al-Badanī)

It is essential for the patient to establish consistent schedules for both eating and bowel movements to promote the formation of a regular physiological routine. A sedentary lifestyle is a contributing factor to constipation, as it diminishes intestinal motility. Physical activity enhances peristalsis and gastrointestinal function. Therefore, exercises that involve body movement, such as walking, horseback riding, boxing, swimming, and sports that require physical exertion, including football, hockey, and tennis, are recommended to improve bowel function.

Psychic movement and repose:(Al-Ḥarakawa'lSukūn al-Nafsānī)

Patient should avoid overexertion of mind because stress is one the cause of constipation.

Sleep and wakefulness:(Al-Nawmwa'lYaqza)

Insomnia causes increase in biloushumours which is one of the cause of constipation.Hypersomnia causes increase in phlegmatic humors which is also a cause of constipation. Therefore patient should take adequate amount of sleep.

Evacuation and Retention:(Al-IḥtibāswaAl-Istifrāgh)

In chronic constipation avoid strong purgatives. Use laxatives and oils like Roghan e Badām, milk, green vegetables, flour etc .In Acute constipation purgatives can be used.

Ilājbi'l-Dawā (Pharmacotherapy)

In case cause of constipation is hotness and dryness of intestines then give Mubarridwa Muratṭibwamuzliq medicines. Ma'uljuban is beneficial.³¹Use nerve and intestinal tonics

like kuchla which increases the power of excretion. Asphagol, Rogan e badam, Rogan ebaidanjeer. Addroghaniyāt in diet.³³

Single drug formulations (Mufridāt):

- Asphaghol (Plantago ovata)
- Anjeer (Ficus Carica)
- Mawweez Munaqqa (Vitis vinifera)
- Banafsha (Viola odorata Linn)³¹
- Compound formulations (Murakabaat)
- Hab-e-ghariqoon, majun Anjeer, Hab-e-muqil, Hab-e-Mubarak²⁹
- Safuf e mullayyin, Safuf e anardaana.³⁶
- Itrifalzamani, Itrifalmullayyin, Qursmullayyin, Sharbat deenar, Majooninjeer.³²
- Gul-e-kand, Hab e Qabzkusha³⁷

Treatment:³⁸

The treatment of constipation requires a comprehensive approach that addresses underlying causes and focuses on promoting regular bowel movements and symptom relief:

Dietary and Lifestyle Modifications: Emphasize increased fiber intake from fruits, vegetables, and whole grains, along with adequate hydration to soften stools. Scheduled bathroom time and regular physical activity further promote bowel regularity.

Physical Therapy: For patients with pelvic floor dysfunction, physical therapy focusing on the pelvic floor can be beneficial.

Biofeedback Therapy: Biofeedback therapy or cognitive behavioural therapy may be beneficial, particularly when stress or anxiety exacerbates symptoms.

Over-the-Counter Medications: Bulk-forming agents, stool softeners, or osmotic agents may provide short-term relief but should be monitored for extended use.

Medications: Paraffin, lactulose, Sodium picosulfate, Milk of magnesia, Polyethylene glycol.

Surgical Interventions: In cases of colonic inertia, total abdominal colectomy with ileorectal anastomosis may be necessary.

Special Considerations: Sacral Nerve Stimulation: Used for refractory constipation, sacral nerve stimulation may help modulate inhibitory reflexes in some patients.

Peripherally Acting Mu-opioid Antagonists: Methylnaltrexone, naldemedine, and naloxegol may be used to treat opioid-induced constipation.

Long-term Safety Concerns: Caution is advised regarding the long-term safety of certain pharmacological agents, and their use should be carefully considered.

ROLE OF FIBER IN CONSTIPATION:

Fiber is a type of carbohydrate that the body can't digest. Though most carbohydrates are broken down into sugar molecules called glucose, fiber cannot be broken down into sugar molecules, and instead it passes through the body undigested. Fiber helps regulate the body's use of sugars, helping to keep hunger and blood sugar in check.

Children and adults need at least 25 to 35 grams of fiber per day for good health, but most Americans get only about 15 grams a day. Great sources are whole grains, whole fruits and vegetables, legumes, and nuts.

Fiber comes in two varieties, both beneficial to health:

Types of Fiber:

Soluble fiber, which dissolves in water, can help lower glucose levels as well as help lower blood cholesterol. Foods with soluble fiber include oatmeal, chia seeds, nuts, beans, lentils, apples, and blueberries.

Insoluble fiber, which does not dissolve in water, can help food move through your digestive system, promoting regularity and helping prevent constipation. Foods with insoluble fibers include whole wheat products (especially wheat bran), quinoa, brown rice, legumes, leafy greens like kale, almonds, walnuts, seeds, and fruits with edible skins like pears and apples.

Naturally occurring plant fibers:

Cellulose, hemicellulose – Insoluble fiber found in cereal grains and the cell walls of many fruits and vegetables.

Lignins – Insoluble fiber found in wheat and corn bran, nuts, flaxseeds, vegetables, and unripe bananas

Beta-glucans – Soluble highly fermentable fiber found in oats and barley that is metabolized and fermented in the small intestine. Acts as a prebiotic.

Guar gum – Soluble fermentable fiber isolated from seeds. Has a viscous gel texture and is often added to foods as a thickener.

Inulin, oligofructose, oligosaccharides, fructooligosaccharides – Soluble fermentable fibers found in onions, chicory root, asparagus, and Jerusalem artichokes. May help to bulk stool with a laxative effect, normalize blood glucose, and act as a prebiotic.

Psyllium – Soluble viscous nonfermentable fiber extracted from psyllium seeds that holds onto water and softens and bulks stools. Has laxative effect and is an ingredient in over-the-counter laxatives and high-fiber cereals.

Lifestyle behaviors that help relieve constipation include eating more fiber from fruits, vegetables, and whole grains; drinking more water; and regular exercise. There are various reasons why fiber reduces constipation. Some types of soluble fiber bind to water, creating a gel that helps to soften and bulk stool. Insoluble fibers mildly irritate the intestinal lining, which stimulates the secretion of water and mucus to encourage movement of stool.⁴⁰ Certain fibers act as prebiotics, or food for gut bacteria, which ferments fibers into short chain fatty acids and increases water in the intestines to produce softer, easier-to-pass stools.⁴⁰

Because of the differing actions of various fiber types with constipation, a range of high-fiber foods from whole grains, fruits, legumes, and vegetables is recommended. It is suggested to increase fiber intake gradually, because a sudden significant increase in dietary fiber can cause bloating and cramping. Drinking more fluids while eating more fiber can also help lessen these side effects.

Fiber and Disease:

Fiber appears to lower the risk of developing various conditions, including heart disease, diabetes, diverticular disease, and constipation. Fiber's beneficial role in the gut microbiome may produce anti-inflammatory effects that alleviate the chronic inflammation associated with these conditions.³⁹

Conclusion

Constipation is a prevalent gastrointestinal disorder and often serves as an indicator of underlying issues within the digestive tract. It is characterized by infrequent, difficult, or painful bowel movements, which can result in conditions such as irritable bowel syndrome (IBS). Constipation is typically diagnosed when an individual experiences fewer than three bowel movements per week. During episodes of constipation, the stools become hard, making defecation difficult and requiring significant straining. This can lead to complications such as anal fissures or hemorrhoids. A more concerning issue arises when the passage of stools becomes completely obstructed, which, if persistent, can result in serious health consequences. Constipation can affect individuals of all ages, including children, often due to dietary factors or a lack of physical activity.

Conventional treatments for constipation generally involve the use of laxatives to facilitate stool passage. However, prolonged use of chemical-based laxatives can disrupt the body's metabolic balance and impair normal digestive function. Thus, constipation should not be overlooked, and appropriate treatment is essential. The etiology of constipation can be multifactorial, with contributing factors such as poor diet and medication side effects. The widespread adoption of unhealthy dietary habits and a sedentary lifestyle has exacerbated this condition.

From a physiological standpoint, effective elimination is crucial for maintaining overall health, vitality, and energy. Unani medicine, a holistic approach to health, posits that constipation is primarily due to an imbalance in the body's humors (Akhlāt). Treatment focuses on restoring harmony among these humors, thereby improving digestion and metabolic processes to facilitate normal bowel function. Unani therapeutic strategies for constipation involve the use of herbal formulations, which consist of carefully selected herbs that work synergistically to correct humor imbalances, enhance digestion, and restore normal colonic function. These interventions offer potential benefits in alleviating the symptoms of constipation and promoting regular bowel movements.

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