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Review Article

Causes and Management of Constipation in Elderly

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Abstract

Background: As the aging process interacts with the disease, it leads to special medical needs for the elderly people. Some gastrointestinal disorders are found in more prevalence and sometimes different prognosis in elderly patients than young ones which makes it difficult to be treated. Constipation is a common concern for older adults. With age, the frequency of constipation increases and varies across environments.

Aim: The purpose of this research is to classify the epidemiological, clinical and pathophysiological characteristics of chronic constipation and to examine the effect of this problem on the quality of life with a special focus on elderly subjects.

Conclusion: Constipation is one of the most wide spread conditions especially in elder patients, mostly because of aging, decreased physical activity and poor diet. Also it is a common condition it could lead to serious complications if not treated probably in about 50% of patients. Treatment of constipation is still a challenge, as also we have many medications available, the patients satisfaction with the results still unsatisfactory, which requires further development of new medications that improve the condition especially in elderly patients.

Keywords: *Constipation in Elderly; Management of Constipation; Causes of Constipation in Elderly*

Introduction

As the aging process interacts with the disease, it leads to special medical needs for the elderly people. Some gastrointestinal disorders are found in more prevalence and sometimes different prognosis in elderly patients than young ones which makes it difficult to be treated [1]. To define constipation, we shall consider the difference between the patient and the medical view of this condition, as the patient consider having little bowel movement, hard stool passing or unsuccessful defecation as constipation, while the medical view relies only on the bowel movement frequency, the normal bowel frequency is defined to be from at least three stools a week to the maximum of three

stools a day [2], so those below this threshold are considered to be having constipation, mostly the Rome III criteria is used to decide whether the patient has constipation or not, this criteria rely on using a combination of objective (stool frequency, manual maneuvering necessary for defecation) and subjective (straining, lumpy or hard stools, incomplete evacuation, sensation of anorectal obstruction) [3].

Constipation is a common concern for older adults, and a struggle. With age, the frequency of constipation increases and varies across environments. In the population, the prevalence of individuals 65 years of age or older is 26 per cent for women and 16 per cent for men [4]. For women, this figure rises to 34 percent and for men to 26 percent among those aged 84 years and older. For seniors on long-term care, the prevalence is as high as 80% [4,5].

The efficacy of the different treatment strategies for constipation in elderly people is different, the different options for the treatment include using fibers as supplement, stimulant laxative, osmotic laxative, and stool softener, while the statistics showed that rate of using laxative is higher in elderly, focusing mainly on patients staying in nursing homes as up to 74 % of them use laxatives every day [6,7].

Moving to how this condition affects the economy, we could take look over the impact in U.S which shows how much chronic constipation is serious as statistics shows about 2.5 million visit to physicians and 100,000 annual hospitalization because of CC [8], it doesn't only affect the economic side but also the quality of patient's life, social and psychological implications [9].

The purpose of this research is to classify the epidemiological, clinical and pathophysiological characteristics of chronic constipation and to examine the effect of this disease on the quality of life with a special focus on elderly subjects.

Epidemiology

As there is no specific definition for constipation, the rates of CC is different from one literature to another, but not just the definition is the cause of this wide variation, but also the kind of population and the setting where CC is studied also contributes to this difference. A case study showed the difference in constipation rates between old patients attending a day hospital with symptoms of constipation to general practice controls and the results revealed that Twice as large in terms of and possible health effects, such as day hospital attendants (55% vs 23%) [10].

The last surveys that uses mainly data od community elderly populations who self-report having CC showed a percentage of 30% [11], while more recent reports showed a percentage of 15 - 20% [12], while the common thing between all the studies is that the rate of CC is two to three times higher in women than men [11,13]. On the other hand, while most of the studies revealed high prevalence of CC in elderly patients, other studies showed that they have the same or sometimes less rates [12,14]. Overall it is estimated that one in five to one in six of the elderly persons in the community are experiencing constipation [11].

Moving to elderly patients who are resident of nursing homes, only few data are available, while a study showed that about 50% of the resident experienced constipation and between 50 - 70% are using laxative everyday [15], while recently a huge survey was made in U.S that included more than 21,000 resident showed less rate of 12.5%, this results could be because of using a criteria that depends only on frequency of straining and movement of the bowel, generally it is obvious that many factors such as usage of multiple medication, less hydration and lack of movement contributes to the high rates of nursing home resident of elderly people having constipation [16].

Generally, the high rates of constipation in elderly people and also its possible effects and hazards such as faecal impaction, shows how serious this condition is, also the quality of life is affected as a study showed that 11% of the patients who receive health care at home, they considered constipation as a major health problem while 6% classifies it as one of the highest three health concerns [17]. Finally the economic impact either on the patient or the health care system is not clear, but it is clear that elderly patients contribute to a big percentage of both prescribed and OTC laxatives, the cost is about £43 million in England per year and about $US500 million dollars in U.S [18].

Causes

Simple colonostasis because of decreased movement and physical activities in elderly people is considered the main cause of chronic constipation, also there are other types of constipation such as mechanical constipation; muscular constipation; neurogenic and psychogenic constipation; and metabolic constipation [19].

Simple constipation

It could be grouped into 2 types of simple constipation, also called colonostasis, based on whether it is because of the patient himself, or because of the environment that surrounds the patient [19,20]. This is mainly because of elderly people ignorance to necessity of defecation when they feel it, that lead to loss of the rectal receptor sensitivity to this stimuli any more, as feeling of the need for defecation occur when the intra-intestinal pressure is higher than normal [20], while the elderly people have a problem in the motor activity of the large intestine which causes colonostasis, Bad eating patterns, inadequate physical activity and suppressed activity of the reflex systems involved in defecation are the simple causes of colonostasis in elderly people [21].

In a healthy person, extending the rectum is followed by an impulse to move a stool. In elderly people with constipation the rectal receptor sensitivity to stretching is decreased. This allows massive quantities of faeces to collect in the rectum and, despite an overfilled rectum, they rarely have an urge to move the stool and this contributes to rectum dilation.

Mechanical constipation

Tumors, diverticulosis and rectal mucosal prolapse can cause obstruction of the intestine's lumen. In addition, ascites, an enlarged uterus or its adnexes or tumors of other adjacent organs can compress the intestine. In these cases, colonostasis is not caused by organic narrowing of the intestinal lumen, but by disorders of the reflex evacuation mechanisms due mainly to pain caused by the intestine itself or structures associated with it, this type of constipation is more common in elderly patients than young ones [20].

Muscular constipation

Discharge and passage of faeces is achieved by the help of muscles, so weakness of theses muscles cause muscular constipation, starting from the diaphragm muscle whose contraction is the main cause of defecation, that's why any disease of the lung affects the diaphragm function, then moving to the muscle of the abdomen walls that is responsible for increasing the intra- abdominal pressure, also weakness of this muscle will cause constipation and is a common thing in elderly people, in women, the muscle above the anus have a great role in defecation by contracting it, but old women who had many pregnancies mainly have this muscle atrophied, which is one of the main causes of constipation in women [20].

Psychogenic and neurogenic constipation

Schizophrenia, nervous anorexia and depression are the main causes of Psychogenic and neurogenic constipation in elderly patients, as these conditions lead to patients ignorance of the need for defecation either because of decrease sensitivity to the need for defecation or because of the effect of the medications used to treat these conditions, also acute colonostasis is noticed in patients who have diseases in lumbosacral part of the spinal cord and the cauda equine such as tumours and syphilis and the faeces is accumulated [19].

Metabolic constipation

Constipation is also found in endocrine diseases such as myxedema, whose first signs is constipation, also elderly people who have diabetes mellitus also complain constipation that is usually accompanied with neuropathy [1], finally patients who have heart failure and

use diuretics usually complain constipation due to decrease level of potassium, this is managed usually by giving less dose of diuretics and correction of hypokalemia [20].

Diagnosis

Accurate treatment of the data collected from the patient is important in case of constipation, this data includes medications they use, their family history, presence of any other diseases, this all come together with physical examination such as digital rectal examination [22]. Aiming to improve diagnosis, a group of experts suggested criteria known as Rome criteria. These criteria suggest that a patient is diagnosed with constipation only if he has two or more of the following [23]:

a. Straining throughout at least 25% of the defecation time

b. In at least 25 percent of defecation, lumpy or stiff stools is present

c. Incomplete evacuation sensation for at least 25 percent of defecation

d. Anorectal obstruction/blockage feeling for at least 25 percent of defecations

e. Manual manoeuvres to encourage defections of at least 25 per cent (e.g. digital evacuation, pelvic floor support)

f. Fewer than three bowel movements a week.

Following this criteria with the absence of any other warning symptoms such as history of colorectal cancer and weight loss, would possibly suggest functional constipation without the need for any further diagnosis, but presence of any alarming symptoms would usually acquire further diagnosis such as colonoscopy.

In everyday practice, the Bristol stool scale may be a helpful method. This is a scale of seven levels based on the degree of texture and morphology of the faeces Corresponds to cycles of gastrointestinal transit. Slow intestinal transit is indicative of the first two stages, whereas stool consistency stages of 6 and 7 correlate with rapid transit and diarrhea [24]. Rectal examination is mostly used in diagnosis of faecal impaction which cause pseudo-diarrhea, as fluids moves around the cluster of faeces, this condition could be misdiagnosed as diarrhea, and antidiarrheal are given that will worsen the case, also rectal examination could reveal any changes in the pelvis floor such as rectal cancer [24].

Determining the GIT transit time is also another diagnostic method, based on using radio-opaque markers, after the patient ingest this marker, radiological diagnosis is made to determine the distribution of this marker, this method is important in differentiating between slow transit constipation and outlet obstruction [25].

Intestine motor abnormalities could also be determined by Gastrointestinal manometry tests That indicates presence of any neuropathy or myopathy of the gut which causes constipation [26] wireless motility capsule (WMC) is another technique that is used when there is a possibility of multiple disorders in motility of many regions, it measures the colonic transit and give data about the stomach and small bowl.

Finally, it is possible to use dynamic videoproctography or MR defecography to further examine constipation cases due to obstructed defecation [26].

Management

The first step in management of constipation is applying changes to lifestyle and diet, this is called non-pharmacological treatment [27], patient could start with simple physical activity as walking as bowl movement is better after walking and eating, also patients should be advices to watch and respond to any sensation of the need for defecation once it comes that would improve the condition [28]. Increase intake of fluids and fibers up to 30 g/day is also an effective way, this could be done by adding vegetables, fruits and bran to the diet, on the other hand fluid intake should be monitored carefully in elderly patient with heart diseases [29].

Fibers are proved to be effective not just in slow transit constipation but also in those who have pelvic floor dysfunction as the American College of Gastroenterology published a paper that showed fibers as an effective way to improve constipation with taking into consideration the side effects such as flatulence and cramping especially in non-gradient administration of fibers [30] some soluble fibers are now used to overcome problems associated with bran, such as psyllium seeds as natural one and calcium polycarbophil as synthetic one these fibers act by holding liquid in gut to increase stool bulk, also they are better than bran, their fermentation in the stomach any microbes still causes many side effects and finally some trials showed that dried plums have better efficacy than other options available [31].

Probiotics which are given as dietary supplement including yoghurts are also an effective way in treatment of constipation, as with aging the normal flora are decreasing, where probiotics help restore its function, also probiotics have the advantage of having no side effects and no interactions with other medications, probiotics increase short chain fatty acids, leading to soft stool and short transit time [32]. Suppositories and enemas are also used in faecal impaction, as it help evacuation of stool, side effects were reported with phosphate and soapsuds enema while tap water enema is a safe alternative [33].

Pharmacological therapy: In case of failure of management of the case using non-pharmacological management, we move to medications, many groups of medications called laxatives with different mechanisms of actions are available in the market, they act mainly on softening the faeces and ease its passage, in this article we focus on laxatives used in management of constipation in elderly patients [34].

Stimulant laxatives are the first group of laxatives derived from anthraquinones, such as Senna, rhubarb, aloe and cascara, they act mainly be increasing intestinal secretion by irritating it, that lead to increase water content in the intestinal lumen, it also increase motor activity, although this group is effective. Their chronic use is not recommended [35].

Osmotic laxatives are hyperosmolar agents that allow water to be secreted by osmotic activity into the intestinal lumen, thereby enhancing bowel transit and stool consistency. The most popular and safest compounds used in older people are lactulose, lactitol, and macrogol [36,37]. In a multicenter study of 164 patients, including a community of elderly people, lactulose was found to be more successful in raising the frequency of the intestines by day seven compared to laxatives containing senna, anthraquinone or bisacodyl [37]. Polyethylene glycol (PEG) which is made from organic iso-osmotic polymer, is proved to improve constipation by retaining water in the lumen that reduces stool hardness, studies reported that PEG is more effective than placebo in providing long term treatment of constipated elderly patients [38].

Although many laxatives are available, less than 50% of patients are satisfied with the results, which necessities looking for new better alternatives among them Serotonergic agents and pro-secretory products (lubiprostone and linaclotide) [39]. Lubiprostone, an intestinal secretagogue, activates type 2 chloride channel that lead to passive diffusion of sodium and water in the intestinal lumen, in a study where 10% were elderly, lubristone proved to be more effective than placebo [40].

Conclusion

Constipation is one of the most wide spread conditions especially in elder patients, mostly because of aging, decreased physical activity and poor diet, also it is a common condition in about 50% of patients it could lead to serious complications if not treated probably,

treatment of constipation is still a challenge, as also we have many medications available, the patients satisfaction with the results still unsatisfactory, which requires further development of new medications that improve the condition especially in elderly patients.

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