

Bowel Management: Constipation among Patients with Cancer

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Abstract

Constipation has a negative effect on patients with cancer and their families. It negatively affects the quality of life terms of physical, social, psychological, and spiritual dimensions. The aim of this paper was to review the studies that addressed constipation among patients with cancer and to explore its influence on the quality of life and well-being for patients and their families. Completed studies were identified through systematic search using Cumulative index for Nursing and Applied Health Literature, EBSCO Host, Ovid Journal and PubMed. This search located the studies that were published between 1989 and 2015 about constipation effect, pathophysiology, assessment and management. The review identified 44 studies and indicated that constipation has negative effect on QOL among patient with cancer and their families. Various assessment and management constipation tools and strategies were used according to patient's health condition. Pharmacological and non-pharmacological methodologies were used to manage constipation. Appropriate assessment has a positive impact on effective management of constipation among patients with cancer; that may help improve the quality of life. Nurses play a significant role in performing comprehensive assessment strategies to detect the risk factor for constipation and applying the prevention precaution to reduce opportunity of its occurrence. Nurses should perform constipation management strategies that include both pharmacological and non-pharmacological approaches.

Keywords: Constipation; Cancer; Constipation assessment; Management; Practice policy

Introduction

Constipation is a stressful symptom among patients with cancer, and responsible for great amounts of discomfort and suffering. It has defined as a decrease in the frequency of evacuated formed stools that are small, inflexible and difficult to be push out of the body [1,2]. In addition, constipation defined as subjective experiences of abdominal bloating, rectal fullness, abdominal cramping and straining to defecate [3]. Individuals vary in the weight they give to the different components of these definitions when assessing their own constipation and may introduce other factors such as pain and discomfort when defecating, flatulence, bloating or a sensation of incomplete evacuation [4]. Drossman et al. [5] described criteria to diagnose constipation that patients have two or more of the subsequent symptoms for at least 3 months; less than three bowel movements for every week, rigid stools in at least 25% of defecations, strain in at least 25% of defecations, partial vacating in at least 25% of defecation, feeling of vacation barrier in at least 25% of defecations, and loose stools are not often founded without laxative medication.

Constipation is a stressful unpleasant symptom that can influence patients at any time during their life and disease process [6]. The severity of constipation can fluctuate from minor to sever which may affect the individual's physical, psychological and social distress level [7]. Craig et al. [8] identified the severity of constipation in patients with cancer by a descriptive cross-sectional study. The results showed that 63% of patients have constipation, mild to severe in intensity, caused symptom distress, and persisted over time. Palliative care is a crucial part for patients with cancer having constipation, to improve quality of life (QOL) [6]. So, the management of constipation is one of

admirable goal in palliative care to achieve person well-being and to improve the QOL [7].

In United Kingdom, constipation influenced about 2-10% of general population [9]. The prevalence of constipation among elderly become higher and estimated to be 20-50%, but it recorded significant percentile among patients with cancer where 70-100% have this distress symptom [9]. Rajput and Saini [10] estimated the occurrence of constipation among general people using a sample of 505 persons from different age group. The results showed that 24.8% at 18-59 years old had constipation during past years. The incidence of constipation in chronic non-curable disease is higher specifically among patients with cancer, where constipation among patients with cancer is caused by bowel dysfunction and opioid bowel dysfunction [9]. The opioid bowel dysfunction happened because of opioid side effect [11]. Droney et al. [12] founded that 72% of 274 patients taking oral morphine experienced constipation. Bell et al. [13] showed 81% of patients with cancer had constipation caused by the side effect of opioid and negatively affected the activities of daily living and QOL.

Constipation influenced different age group as well as elderly [9]. It also founded in many disease condition; such as chronic illness and cancer [8]. Therefore, it is important to discuss how constipation affects the QOL and to understand the underlying causes of constipation. Ultimately, this may help to assess and manage constipation in order to maintain health status and to promote well-being and QOL for patients with cancer [7]. Understanding the pathophysiology of constipation, the management modalities and providing different suggested practice policies to evaluate and manage constipation are of highly importance. Therefore, this paper aimed to review the studies that addressed constipation among patients with cancer to explore its influence on the QOL and well-being.

Method

An extensive search of the literature using different data bases including Cumulative Index of Nursing and Applied Health Literature (CINAHL), EBSCO Host, Ovid Journal and PubMed was undertaken. This search was performed to locate the studies published between 1989 and 2015 that addressed constipation among patients with cancer. Keywords used included “Constipation”, “Cancer”, “Quality of Life”, “Constipation Assessment”, “Constipation Management”, “Practice Policy” and “Jordan”. Eighty articles were identified, of which 44 deemed relevant and analyzed in terms of constipation consequences, pathophysiology, constipation assessment and management.

Inclusion criteria

Inclusion criteria for the present review included studies that (a) were published in a peer-reviewed medical and nursing journal, (b) used a research-based approach, (c) written in English, (d) were published between 1980 and 2016, and (e) addressed constipation among patients with cancer. Potential bias in the chosen studies was avoided by incorporating all appropriate retrieved studies and comparing the results of different studies.

Results of the literature review

Forty-four research studies were identified and analyzed in terms of constipation consequences and pathophysiology, opioid induced constipation, constipation assessment and management.

Constipation consequences

Constipation has a negative impact on all dimensions of the quality of life, even they with or without chronic disease and whatever the underlying cause of constipation. These dimensions included physical, social, psychological, and spiritual [7]. Constipation does not affect patients with cancer only, but also patients with other health problems. A prospective longitudinal study conducted in Germany, Canada, United States and United Kingdom and aimed to provide comprehensive view about experience and symptom burden over time to among chronic non-cancer patients complaining of pain and used opioid to treat this pain as result of opioid consumption, constipation is occur. The findings revealed that constipation persists despite sufficient laxative use and with little symptoms improvement, activity impairment, and negatively impact on health-related QOL [14].

Constipation not only impaired the patient's QOL, but also affected families' and considered as burden on health-care resources. The QOL of patients with cancer and their care-givers that were affected by constipation may include social background, economic condition, environmental situation, family, psychological, and spiritual living aspects [15]. A prospective, cross-sectional study aimed to assess symptoms and health-related QOL for patients with cancer. One hundred twenty-four patients were analyzed within two different settings in hematology and oncology departments at a comprehensive cancer center in Denmark. Constipation and pain were more in patients with cancer and lead to low health-related QOL compared to patients with blood problems [16].

From health-care provider perspective the constipation posed an economic burden for the patient and healthcare provider, the resource used related to constipation diagnosis and management is a significant cost driver [17]. From patient's perspective, the patients with cancer

complain of financial distress, physical and emotional symptoms and low QOL [17]. Cross-sectional study aimed to examine the frequency of financial distress and its correlates in 149 patients with cancer. The result showed that greater than 30% of patients rated financial distress to be more severe than physical, family and emotional distress [17]. In addition, Koloski et al. [18] designed study aimed to determine the impact of persistent versus transient constipation on health-related QOL, depression, and mortality among Australian women. The sample sizes was 5,107 with age group ranged (70–75 years old), who have had constipation in the past 12 months. The result indicated that a higher levels of self-reported depression and mortality rates and poor healthrelated QOL in women who reported persistent constipation than the other group.

Dhingra et al. [19] performed a qualitative study to discover the illness and psychological suffering associated with opioid-induced constipation (OIC) among patients with cancer. The results represented the following themes; the first was the patients believed that dietary management would have the same effect on opioid-induced constipation as on diet-induced constipation. The second theme was constipation considered as reason of depressive symptoms and anxiety. The third theme was patients acknowledged conflict with continued use of opioids, beside the discomfort and psychological effect of constipation on their activity daily living.

The relationship between constipation and gender was examined. Rajput et al. [10] founded that constipation was significantly higher in women than men, and the cause of constipation were; reduced dietary habits, decreased fiber and fluid intake during day, and decreased of physical activity.

In relation to earlier studies that discussed in literature review many ideas can concluded, constipation negatively affect patients health related QOL, families, and health care providers. Constipation caused psychological distress, depression, anxiety, and economic burden. Regarding to gender, constipation has more negative impact on women more than men.

Constipation pathophysiology

Defecation process occurs based on three areas of direct; the small intestinal, colon, and rectum, and involves the mechanisms of; secretion, transport, absorption, and storage [9]. In small intestine, the combination and mixing of chyme happened by peristalses movements, the chyme increased gastric, biliary, and pancreatic secretion, to facilitate absorption. The peristalses movement occurs every 80 to 120 minutes, but it changed when food is ingested [20]. The chymas transportation time during small intestinal is about 2–4 hours [20].

Contents stay in the colon approximately from 2 to 3 days; the colon movement is slower than the small intestine one. A peristaltic in the large intestine occurs around six times during the day. Defecation process physiology involves the balance between the involuntary internal anal sphincter and the voluntary external anal sphincter. Remaining intestinal from chyma bloated the rectum, and the eviction is begins. The longitudinal muscle of the rectum contracts and with the voluntary external anal sphincter relaxed, with assists from surrounding muscle such as contraction of abdominal wall muscles, and relaxation of pelvic floor, defecation can occur [20].

The nervous system has a vital role in the movement of bowel contents from beginning to end the gastrointestinal (GI) tract. The smooth muscles in the GI tract have electrical impulsive and regular

action, similar to the stomach and small intestine [9,20]. The submucosal and myenteric plexuses nerves are attached to the central nervous system, through sympathetic and parasympathetic fibers in the vagus nerve and the presacral plexus. Opioid medications influence the myenteric plexus, which regulated peristalsis movement. Consequently, peristalsis is decreased and stool transfer time is decreased, leading to fragmented, harder, dryer and less frequent stools or constipation [9].

Based on etiology, constipation is divided into three main different groups; primary, secondary and iatrogenically induced constipation [9,20]. The primary constipation is caused by factors that interrupted usual bowel functioning such as decreased fluid and fiber intake, reduced physical activity, and lack of adequate time or privacy to defecate [9,20].

The secondary constipation is correlated to alter in physiological integrity of GI, metabolic or neurologic disease. These disorders may cause by tumor induced partial intestinal obstruction, metabolic effects of hypercalcemia, hypothyroidism, hypokalemia, hyperglycemia, cerebral tumors, spinal cord compression in section to the sacral plexus and sacral nerve infiltration [9,20].

The iatrogenically induced constipation is caused by pharmacological interventions such as, opioids, anticholinergic medications (antihistamines), chemotherapies, antiemetic therapy (5-HT3 antagonists) and tricyclic antidepressants (nortriptyline) [9,20].

Constipation related to cancer

Constipation in cancer caused by cancer itself or cancer associated factor. Cancer caused constipation such as pelvic cancers, including ovarian, cervical, and uterine cancers, all are significantly related with mechanical obstruction and constipation [21]. Cancer-associated factor for example, surgical disruption of the GI tract [21,22]. Reduced physical activity and changes in personal habits related to bowel movements, like long period bed rest also may lead to constipation [23].

Opioid-Related constipation among patients with cancer

Opioids impaired peristalsis movement in small and large bowel that may cause constipation [24]. Opioids combine with the receptors of smooth muscles on bowel that reduced the contraction of the circular and longitudinal muscle, which lead to decrease peristaltic [25]. Furthermore, Colonic passage time is prolonged, leading to more and more fluid and electrolyte absorption from chyme residual, leading to dryer and harder stools [9].

Peristaltic rhythm influenced after 5 to 25 minutes from administration of the opioid to the patients. Thus, many of patients did not accept constipation as side effects with long-term use of opioids [26]. The use of laxatives and stool softeners with opioids based on rational is one of management modalities to opioid-induced constipation [11].

Assessment of constipation

To achieve successfully management and symptom relieve, good assessment is needed. Assessment provides holistic view about patient condition and provider significant information to the nurses and other health care-provider to design care plan, intervene and evaluate to the patients complain of constipation [27]. Without correct assessment,

wrong or useless treatment may result. To manage constipation, complete health history and physical examination is required [28].

Assessment started from complete patient history, to obtain based line data about clinical manifestations that patient complain from like; abdominal distention, rectal fullness, anorexia, nausea, and vomiting [7]. Bowel pattern involved normal and current bowel habit, lifestyle that includes eating fiber, fluid intake, and physical activity [22]. The patient history should including also nature, color, consistency, and smell of stools. All of these data must be informed and documented [27].

Constipation assessment scale can assist to keep stability of assessment, and continuity over time. Some of the most common constipation scale used in clinical area are; Constipation Assessment Scale [29], Bristol Stool Scale [30], Constipation Visual Analogue Scale [31], and Eton Scale Risk Assessment for Constipation [32].

Physical examination started from oral assessment to identify any bad breathes odor and dental problem [7]. Then move to performed abdominal assessment by observation, auscultation, percussion, and palpation, to assess signs of tenderness and distension, determined availability of abdominal sound include bowel sound [7]. Digital rectal examination (DRE) could be applied as needed to evaluate rectal fissure, hemorrhoid, fecal impaction, and sphincter tone [27]. Also, Colonoscopy is used to exam large bowel pathology [7]. Keeping patient fasting and effective bowel preparation is essential to have the right results [33].

Prevention precaution

Nurses, who are working at different clinical area, should take in consideration risk factors for constipation based on medical condition, disease process and different type of medication, and then decide the appropriate strategy for management [7]. Prevention precaution including; keep comforting and maintain privacy at time of defecation, positioning is one of method to facilitate defecation with gravity, encouraging fluid and fiber intake as patients tolerate, and promote physical activity and mobility as possible [28].

Management of constipation

Constipation preserves as stressful and painful symptom with negative effect on the patient's QOL [7]. So, different management modalities are provided to improve patient condition started from prevention and anticipatory management approach, moving for pharmacological and non-pharmacological approach to relieve it [23].

Pharmacological management

A pharmacological intervention like laxative therapy is considered the core of treatment and essential for opioid consuming patients [11]. Laxative therapy separated into two categories; stool softeners which consist of bulk laxatives and stimulant to peristalsis. The stool softener mechanism of action is making stool soft that facilitate defecation, meanwhile the bowel stimulants work to increase peristalsis on the colon [11]. Bulk laxatives action help increase volume in the intestines, that stimulating the bowel to move [25]. Some recommendations highlighted when use laxative to promote maximum effect. It recommended using combination of laxative such as stool softener and a stimulant, to manage constipation in palliative care. When keeping a sufficient fluid intake of 1.5 to 2 liters per day with using bulking agents (e.g. cellulose) that will prevent intestinal obstruction [6].

Pharmacological management for opioid related constipation is divided into two treatment approach; using opioid receptor antagonists, and handling prophylactic laxatives. Opioid receptor antagonists (e.g. Methylnaltrexone) inhibit opioid actions in the opioid receptors on the gastrointestinal tract and it used when reduced response to laxative [34].

Non-pharmacological management

Non-pharmacological management of constipation divided to cognitive therapy, behavioral therapy, and herbal medicine. Cognitive behavioral therapy aimed to make a relationship between body and mind, and in constipation focus to change unusual patterns of behavior to get better patients bowel function. One of these strategies is biofeedback, working to empower patient to make control over their bowel function without use of laxatives [35].

Peripheral therapies such as abdominal massage are affecting constipation by increasing intra-abdominal pressure that induced rectal loading. The massage promote bowel sensation and encourage defecation by stimulates peristaltic generating an autonomies' reflex in the nerves system [36]. This technique provides evidence about effectiveness in improving bowel movement for 30 people with multiple sclerosis. A gentle stroke massage of the abdominal wall followed by four basic massage techniques; stroking, effleurage, kneading, and vibration help improve bowel movement [37].

Acupuncture was established in China around 2000 years ago and is one of the oldest medical actions in the world [38]. The mechanism of action based on energy surge in the body response in the regulation of different body functions. There is 365 points located on 14 main channels (or meridians) connecting the body. Needles insertion in the selected points is carried and the treatment session is begun and needles left for 10 to 15 minutes while the patient lied, and it removed at the end of the session [38]. Li et al. [39] conducted a randomized controlled trial and evaluated the use of acupuncture to treat functional constipation. The result provided significant positive results in treatment of functional constipation.

Herbal medicines when used to relive constipation have laxative like effect, for example mulberry and constituents of rhubarb, which are parallel to senna. So, herbal medicines become used as laxative, based on individual response to it [7].

Nursing care for constipation

Nurse's role started from comprehensive assessment to the patients and care-givers to identify risk factor for constipation. A comprehensive assessment is required to help nurses create holistic picture about constipation manifestation and it's effect on QOL [7]. Individualized nursing intervention in improving patient condition that reduced constipation is very important nursing role [6]. Prospective, randomized control trial designed to expand and observe the usefulness of individualized nursing intervention to decrease constipation among older adults in nursing homes by using laxative in northern Taiwan. The control group did not receive extra care, where the experimental group received an individualized intervention and an eight-week follow-up. The results showed that the frequency of defecation and bowel sounds were higher among participants in the experimental group compared to control group. That provides evidence about the individualized intervention may be appropriate in reducing constipation [40].

If patient complains of constipation, nurses must initiate a creative role in starting laxative therapy, followed by progress evaluation of the bowel function based on clinical guideline. In certain conditions such as using durable opioid therapy, patients need diverse approach of management to facilitate change from one type to another when loses efficacy for a time, similar to opioids, over time, laxative therapy become less effective if patient develop tolerance. Increasing the dose of anticonstipation treatment when increase does of opioid treatment is a possible choice [25].

Suggested practice policy

There are different suggested practice policies, guideline, algorithm and protocol could be used in practice to assess and manage constipation. The first is protocol of prevention intervention to opioid caused constipation [41]. The second is an algorithm for assessment and management constipation [4]. The third is guideline of prevention and management of constipation [42].

Robinson et al. [41] developed a protocol to prevent constipation caused by opioid therapy. It includes pharmacological and non-pharmacologic intervention. Pharmacological intervention based on senna medication, non-pharmacologic intervention include increasing fluid and fiber intake, promote exercising as tolerance, and supported normal peristalsis by providing a calm time after breakfast. Opioid caused constipation in patients with cancer is a problem for nurses working in various clinical areas such as inpatient, palliative units and center, hospice settings, outpatient clinics, and home health setting. Adopting this protocol in such clinical areas could help as time saver in nursing related to management for constipation and impaction elimination. Nurses can empower patients to manage this possible opioid treatment side effect, and so improve patients and care-givers quality of life.

Larkin et al. [4] developed an algorithm for assessment and management of constipation. The steps of treatment directed the health care-provider to logically flow through the pharmacological intervention options. Started with patient complain of constipation, and followed in sequences step in assessment and management based on patient condition and response to the laxative and other treatment. The first line of intervention included oral laxative, if constipation relieved continues by followed the intervention, if not move to second lines intervention by used rectal suppository, enema and opioid antagonist addition to softener and a stimulant according to patient needs.

Third-line treatment if constipation not responded to the previous intervention, manual evacuation is used. Adapted algorithm at administrating level allows using it as practical policy in varies clinical area. Algorithm help assess health care provider to monitor and evaluate patients health condition. Conduct education section to cover prolong period management strategies that are needed to keep a regular bowel movement. Even though, constipation remains a problem for chronic health condition, progress assessment and early intervention, are to enhance patients' comfort [42].

National Comprehensive Cancer Network [42] providing guideline for prevention and management of constipation in opioid- caused bowel dysfunction. The guideline was introducing prophylaxis intervention and prevention precautions, which includes pharmacologic and non-pharmacological measures. Bowel diary, sufficient fiber and fluid intake, physical activity according to patient condition, assistive devices to facilitate defecation, calm and private

environment for defecation, are considered as non-pharmacological measures. Stimulant laxative and stool softener are used as pharmacologic measures.

Nurses performed different role, one of them is educator. Based on guideline for the prevention and management of constipation in opioid- caused bowel dysfunction (OBD), nurses are educating each other and their patients related to medication side effects, including the signs and symptoms of OBD. Successful usage of this guideline in developed prevention and management strategy help diminish the risk of complication development. Nurses should utilize evidence-based guidelines to maximized pain management, prevent complication development, decreased the severity and frequency of constipation, and improve QOL to patients and their families with advanced cancer.

Recommendations for practice

The review recommended to apply the suggested practice policy in clinical area, and to perform future more studies about effectiveness of non-pharmacological method in management constipation among patient with cancer.

Conclusion

Based on this review, constipation has a negative influence on patients with cancer and their families' QOL with a negative effect on women more than men do. Varies assessment tools can applied in clinical area that help assess and diagnose constipation to provide individual treatment modalities. Nurses performed vital role in; assessment, applying appropriate prevention and management constipation strategies, and educating patients and their care-givers about constipation.

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