Original Article

Comparison of the Constipation Assessment Scale and Plain Abdominal Radiography in the Assessment of Constipation in Advanced Cancer Patients

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Abstract

Context. Constipation is a distressing condition for advanced cancer patients and is frequently underdiagnosed.

Objectives. The primary objective of this study was to determine if a strong correlation existed between the use of the Constipation Assessment Scale (CAS) and a plain abdominal radiograph in the interpretation of constipation in patients with advanced cancer. The secondary aim of the study was to compare the plain film radiographic constipation scores among three palliative medicine physicians.

Methods. The study was a prospective cross-sectional study of 50 advanced cancer patients admitted to a tertiary palliative care unit. These patients completed the CAS shortly after their admission to the unit. Around the same time, they underwent a flat plate of abdomen that was scored from 0 to 12, based on the amount of stool in the colon, by three palliative medicine physicians who were blinded to the CAS results and each other's radiographic interpretations. Kendall Tau correlation coefficient was used to estimate and test the correlations between the CAS and radiographic constipation scores.

Results. There was no concordant correlation between the CAS scores and each physician's radiographic constipation score. There also was no concordant correlation between the CAS score and the combined radiographic constipation scores of the three palliative medicine physicians (Kendall Tau coefficient = 0.04; $P = 0.72$). The degree of correlation between the radiographic constipation scores from the three palliative medicine physicians was moderate.

Conclusion. Our study failed to yield a strong correlation between the CAS and the plain abdominal radiographic scores for constipation completed by three

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palliative medicine physicians. It is advisable that constipation in advanced cancer patients be assessed both clinically and radiographically. J Pain Symptom Manage 2011;42:222–228.

Key Words
Constipation, assessment, x-ray, palliative care, radiograph

Introduction

Constipation is a common and distressing symptom for many patients with advanced cancer. Risk factors include the use of opioids or medications with anticholingeric side effects, spinal cord compression, hypercalcemia of malignancy, and immobility. Although 30%–70% of palliative care patients cite constipation as a major concern, it is often underdiagnosed, and there is a lack of consensus regarding the definition, assessment, and management.[1–5]

Methods to assess for constipation include history taking, physical examination, and radiographic studies. Screening for constipation in palliative care should be performed, exploring subjective symptoms in addition to objective signs. A recent study showed that a patient-rated verbal numerical scale did not produce good predictive values for the detection of constipation in a sample of 120 patients from 21 palliative care teams.[6] A more objective indicator of the presence of constipation is a plain abdominal radiograph.[7] A scoring system to delineate the amount of stool present has been described and tested by Bruera et al.[8] in palliative care patients; this scoring system showed high interobserver reliability and has been used to assess for the presence of constipation in patients on the tertiary palliative care unit in Edmonton, Alberta since 1991.

Although the plain abdominal radiograph is useful for identifying constipation, it is costly, can cause patient discomfort because of required positioning, and is impractical and inconvenient for patients cared for at home or in hospice settings where access to radiographic imaging is not available. For these patients, self-reporting of their subjective symptoms and signs using a self-administered questionnaire would be more convenient.

The Constipation Assessment Scale (CAS) is an eight-item self-administered questionnaire that has been validated for use in cancer patients. It takes minimal time to complete (two minutes on average), making it easier and more convenient for patients. There have been a number of studies using the CAS questionnaire as a principal constipation assessment tool, especially in the hospice setting.[9–12]

The primary objective of our study was to compare the use of a plain abdominal radiograph assessment for constipation with the CAS. If a positive correlation between the CAS and plain abdominal radiography were to be obtained, consideration could be given to substituting the use of the CAS in place of radiography to assess for constipation in multiple palliative care settings. The secondary objective was to compare the inter-rater reliability of the plain abdominal radiograph constipation scores among three palliative medicine physicians.

Methods

This was a prospective cross-sectional study conducted on the Tertiary Palliative Care Unit, Gray Nuns Hospital in Edmonton, Alberta from August 2008 to July 2009. Approval was obtained from the Health Ethics Approval Board that includes Covenant Health. Consecutive patients who fit the inclusion and exclusion criteria were approached by the unit's palliative care physicians to determine if they wished to participate in the study. Inclusion criteria included patients with advanced cancer, ≥18 years of age, able to read and comprehend English at a Grade 8 level (this level was felt to be required to complete the CAS), and could complete a plain abdominal radiograph. Patients were excluded if they were clinically suspected to have intestinal obstruction or peritonitis, had cognitive impairment (Mini-Mental State Examination ≤24/30), were unable to have a flat plate of the abdomen