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# Assessing the Psychological Impact of Daily Bowel Preparation on Prostate Patients Who Receive Radiation Therapy

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## ABSTRACT

**Purpose:** Evidence has shown that the prostate moves depending on filling of the rectum and to a lesser extent the bladder; many radiation therapy departments have adopted standardized bladder filling/rectal emptying protocols for radiotherapy treatment. Daily treatments may be delayed until appropriate volumes are attained; the resultant psychological impact of these delays on patients is unknown. The purpose of this study was to determine levels of anxiety, depression, distress, and bother related to bowel preparation for prostate cancer patients undergoing radiation therapy treatment.

**Methods:** A prospective cohort analysis of prostate cancer patients undergoing external beam radiation therapy was completed. Patients were assigned to one of three groups; Group A was standard of care, Group B was standard of care plus increased educational information regarding bowel preparation, Group C was standard of care plus increased educational information regarding bowel preparation plus an anti-flatulent medication. Hospital Anxiety and Depression Scale, Distress Thermometer, and a Bowel Status Bother survey were completed by participants at the start of their course of radiation treatment, mid-way through, and at the end. Analysis of variance testing was completed to determine differences in mean scores between the three groups.

**Results:** Mean age of patients ( $N = 30$ ) was 66 years; 50% of the participants had a university education; 80% were married. Anxiety levels decreased over time in all groups ( $P = .039$ ) with no difference between groups ( $P = 0.447$ ). Depression levels across time for each group remained low ( $P = .577$ ). Overall distress levels associated with bowel preparation were low among each group, and no

significant differences were reported ( $P = .978$ ). All groups reported high rates of quality of life.

**Conclusions:** Findings from this study indicate that collectively across three groups and over time, there were low levels of anxiety, depression, and distress from bowel preparation. Amount, timing, quality, and approach to educational information are important factors to ensure patients feel prepared for their radiation therapy treatments.

## RÉSUMÉ

**But :** Les données probantes ont montré que la prostate se déplace avec le degré de remplissage du rectum et, dans une moindre mesure, de la vessie; plusieurs services de radiothérapie ont adopté des protocoles standard de remplissage de la vessie/vidange du rectum pour les traitements de radiothérapie. Les traitements quotidiens peuvent être retardés jusqu'à ce que les volumes appropriés soient atteints; l'effet psychologique résultant de ces délais sur le patient est inconnu. Le but de cette étude est de déterminer les niveaux d'anxiété, de dépression, de détresse et d'inquiétude reliés à la préparation intestinale des patients atteints de cancer qui suivent des traitements de radiothérapie.

**Méthodologie :** Une analyse prospective d'une cohorte de patients atteints du cancer de la prostate et suivant des traitements de radiothérapie à faisceau externe a été réalisée. Les patients ont été répartis en trois groupes: le groupe A recevait le traitement standard, le groupe B recevait le traitement standard avec une information éducative supplémentaire sur la préparation intestinale et le groupe C recevait le traitement standard, une information éducative

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supplémentaire sur la préparation intestinale et un médicament anti-flatulent. Une échelle hospitalière de mesure de l'anxiété et de la dépression, un thermomètre de la détresse et un sondage sur la préoccupation face à l'état des intestins ont été complétés par les patients au début, au milieu et à la fin de du traitement de radiothérapie. Une analyse de variance (ANOVA) a été effectuée afin de déterminer les écarts dans les notes moyennes des trois groupes.

**Résultats :** L'âge moyen des patients ( $N = 30$ ) était de 66 ans; 50% des participants avaient un diplôme universitaire; 80% étaient mariés. Le niveau d'anxiété a diminué au fil du temps dans les trois groupes ( $P = .039$ ) sans différence appréciable entre les groupes ( $P = .447$ ). Les niveaux de dépression au fil du temps sont demeurés

*Keywords:* Prostate cancer; bowel preparation; impact

## Introduction

Prostate cancer is the most common non-skin cancer to afflict Canadian men each year [1]. Radiation therapy is a treatment strategy for the management of the disease across all risk categories. The use of radiation therapy using intensity-modulated radiation therapy treatment (IMRT) has been steadily increasing. IMRT is a highly conformal radiotherapy technique that allows for the safe delivery of escalated radiation doses to the prostate or tumour bed while minimizing dose to the surrounding normal tissues [2]. As the prostate moves under the influence of the inferior rectum, the benefits of IMRT techniques could be compromised with the movement of the target volume. Rectal distension from stool or gas can result in day-to-day variation and displacement of the prostate [3]. This displacement can significantly reduce local control in prostate cancer because of the difference between the planned position of the prostate and the position at the time of treatment. Likewise, movement of stool or gas during individual treatments can also result in motion of the prostate during the treatment [2].

Many radiotherapy departments have implemented standardized bladder filling and rectal emptying protocols to aid in minimizing movement of the prostate. Various methods used include the use of an anti-flatulent diet and mild laxatives [4], endorectal balloons [5], and evacuating the rectum by inserting and removing the index finger [6]. Current practice at our institution includes verbal instruction to evacuate bowels before the commencement of radiation treatments daily. Unfortunately, patients often present with gas or stool in the rectum of which they are unaware. As a result, patients are taken off of the treatment bed and asked to evacuate their bowel which leads to a delay of their treatment. It is currently unknown what impact these delays have on our patient population.

Some prostate cancer patients have expressed feelings of distress associated with the self-assessment of the emptiness of their bowels for their radiotherapy treatments. Compounding this issue is the anxiety induced by the increased wait times associated with not coming prepared to treatment. Informal

discussions with radiation oncologists and anecdotal remarks from radiation therapists have shown that patients often are embarrassed, upset, and blame themselves, asking if there is something they are not doing correctly to cause the increased rectal size. Overall, this could lead to a less positive patient experience.

**Conclusions :** Les constats de cette étude indiquent que de façon collective, dans les trois groupes et au fil du temps, les niveaux d'anxiété, de dépression et de détresse associés à la préparation intestinale étaient faibles. La quantité, le moment, la qualité et l'approche de l'information éducative sont des facteurs importants pour faire en sorte que les patients se sentent préparés à recevoir les traitements de radiothérapie.

At our institution, a randomized controlled trial was undertaken to determine the impact of an anti-flatulent medication on bowel preparation for prostate cancer patients. Patients taking the anti-flatulent medication should experience less rectal distension leading to quicker and more accurate treatments. Our aim was to quantify and compare the distress, anxiety, and depression levels of prostate cancer patients undergoing the various bowel preparations.

**Methodology**

A prospective pilot cohort analysis was conducted. Patients were eligible to participate in this research ethics board-approved trial if they had a confirmed localized prostate cancer to be treated with dose-escalated IMRT deliver with cone beam computed tomography image guidance. Patients were assigned to one of three study groups. Group A (control group) consisted of 10 non-study prostate cancer patients who received the standard of care bowel preparation information. Standard of care consisted of verbal instruction to evacuate bowels before all radiotherapy appointments. Group B consisted of 10 patients who received standard of care plus written instructions on bowel preparation. Group C consisted of 10 patients who received standard of care plus written instructions on bowel preparation plus daily anti-flatulent medication.

## Methodology

Various tools have been used to assess the emotional impact of treatment in prostate patients including the Distress Thermometer (DT) [7] and Hospital Anxiety and Depression Scale [8]. These tools have been well validated for use with cancer patients [9, 10]; both scales are self-rated, non-invasive, and acceptable alternatives to longer psychometric instruments [10–12]. The DT is a single-item, 11-point scale (0–10 with increasing distress) to rate level of distress in the

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