THE EFFECT OF A MEDICAL DECOMPRESSION PROTOCOL ON THE USE OF ANTIEMETICS, NASOGASTRIC TUBE USAGE AND DIET ADVANCE IN LATE STAGE CANCER PATIENTS WITH FUNCTIONAL INTESTINAL OBSTRUCTION

Anaesthesiology

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ABSTRACT

Background: At the end of life, many cancer patients suffer from a syndrome that simulates classic small bowel obstruction. The traditional approach to intestinal obstruction is relief of pressure in the gastrointestinal tract using mechanical methods. The Medical Decompression (MD) protocol is a non-invasive pharmacologic approach for this problem that is easy and economical. **Methods:** The study was done in a academic institution of central India from April 2019 to October 2019. It included 21 cases based on the inclusion and exclusion criteria. Data regarding demographics, cancer diagnosis, existing drug history and diet history was collected and the sample was randomly divided into two groups: one received medical decompression and the other didn't. The data was compared using t-tests on the outcome variable days to advanced diet. **Results:** Out of 21 cases, 43% were males whereas 57% were females with a mean age of 66 years. About 30% of these had a pre-inserted NG tube. Around 19% of these were already on a clear liquid diet. Most men had colon cancer whereas most females had ovarian cancer. A mean of 1.1 doses and 3.8 days was taken to advance the diet. There was a statistically significant difference between the MD and the non MD group. **Conclusions:** A pharmacologic method such as MD is strongly useful as first line treatments for the functional intestinal obstruction syndrome and indeed be considered as adjuncts to allow the removal of invasive mechanical interventions in the end of life patient.

KEYWORDS

Functional intestinal obstruction, Pseudo-intestinal obstruction, Ogilvie's syndrome

INTRODUCTION

Many patients with advanced cancer suffer from a condition that simulates classic small bowel obstruction, often described by many names, (e.g.; Pseudo-Intestinal Obstruction, Ogilvie's Syndrome) and manifests as abdominal pain, intractable nausea and unremitting vomiting. The term Functional Intestinal Obstruction (FIO) is more aptly used to describe this constellation of symptoms and will thus, be used for same here.

Using data from the United States Department of Health and Human Services, it is estimated that in the United States approximately 62,000 patients are treated annually, in-hospital, for Functional Intestinal Obstruction with an average length of stay of 6 days [1]. Based on an average cost per hospital day of \$1800.00 this problem becomes a significant one in terms of the total burden on the health care system costing upwards of \$669 million a year [2].

On an individual basis however, the premature loss of activity due to the debility of chronic nausea and vomiting prior to the patient's death is devastating, both in physical and emotional terms.

Traditional therapies include Nasogastric Tube (NGT) suctioning to relieve intraluminal pressure and volume upstream of the functional obstruction. These also, with subsequent suctioning, fails to relieve the symptoms of FIO in more than 86% of cases [3]. To this add the discomfort and potential side effects of NGT placements such as sinusitis, nasal irritation with epistaxis and nasal cartilage erosion, pain, increased incidence of aspiration pneumonia. Percutaneously Inserted Endoscopically Placed Gastrostomy (PEG) tubes have been used with varying degrees of success to alleviate the pressure and subsequent nausea associated with FIO. Apart from inability to put PEG tubes in many cases, this procedure also introduces additional cost, that brings in the social and psychological burden on the patient and the family [3]. Surgical Interventions for relief of Intestinal Obstruction both Functional and Mechanical, are indicated when patients have relatively good functional status, an expected lifespan of greater than 2 months and with a defined area of obstruction that can be relieved by diversion of the enteral stream [4,5]. Medical therapies have centered on the use of pro-motility, anti-secretory, and anti cholinergic agents to medically reduce the intraluminal pressure by reducing the production of intestinal secretions and to assist intestinal peristalsis [6,7]. Several authors have focused on the use of Octreotide, an injectable medication, along with corticosteroids and anti-emetics for relief of symptoms of FIO [8,9]. However the sample size in these studies wasn't adequate and Octreotide being an injectable medication was not outpatient friendly. The MD regimen used for this

study was done by Pedro Calves et al in 2017 and was found to be effective [10].

The purpose of this study was to examine the effect of the MD protocol using 1/2 Metoclopramide 10mg IVP every six hours, Dexamethasone 4mg IVP every six hours, Diphenhydramine 25mg every eight hours, and Pantoprazole 40mg IV daily.

METHODS

The study was done only on admitted patients since it involved use of IV medications. The patients included in the study were divided randomly into two groups with almost equivalent numbers of 11 and 10 each, after a proper informed consent was taken from each of them. Patients in whom MD regimen had never been used before were used for this study. If documents of previous usage of these medicines was available, the subject was excluded from the study. Data regarding demographics, primary cancer diagnosis, existing drug history and diet history was taken. t tests were applied to this data for comparison and p was fixed at <0.05 for significance.

RESULTS

A total of 21 subjects were included in the study of which 9(42.8%) were males and 12(57.2%) females. Most of these fell into between the age of 38 yrs to 87 yrs (mean age 66yrs). Six patients had a pre-inserted NG tube (around 30%). The primary diagnosis of the subjects is mentioned in table 1. Most men with FIO had colon cancer (48%) whereas most females had ovarian cancer (22%). Table 2 provides data regarding pre-admission complaints of the patients which mostly consisted of nausea and vomiting. Table 3 shows the pre-admission diet the subjects were already medically advised for.

Comorbidities associated with primary diagnosis are charted in table 4 with the majority having cardiac complications (33%).

TABLE 1: Primary Cancer Diagnosis

DIAGNOSIS	N(%)
Colon	7(33.33%)
Ovary	3(14.3%)
Cervix	1(4.76%)
Lung	3(14.3%)
Breast	1(4.76%)
Liver	1(4.76%)
Kidney	1(4.76%)
Stomach	2(9.51%)

Pancreas	1(4.76%)
Uterus	1(4.76%)

TABLE 2: Pre-admission Complaints

COMPLAINTS	N(%)
Nausea	18(85.71%)
Vomiting	20(95.23%)
Abdominal pain	14(66.66%)
Per rectal bleeding	1(4.76%)

TABLE 3: Pre-Admission Diet

DIET	N(%)
Clear liquid	4(19%)
Semi solid	10(47.61%)
Regular	7(33.33%)

TABLE 4: Comorbidities

COMORBIDITY	N(%)
Cardiac	7(33.33%)
Neurological	3(14.28%)
Diabetes	4(19%)
Dermatological	1(4.76%)
Pulmonary	4(19%)
None	2(9.51%)

A mean of 1.1 doses(SD=0.68) was required to resolve the symptoms. It took a mean of 3.8 days to advance the diet(SD=3.02). A t-test was conducted to investigate significant differences in means between the two group. Results indicated that there was a statistically significant difference between the medical decompression group (M = 1.30, SD = .93) and the non-medical decompression group (M = 4.60, SD = 3.84) related to days to progress diet $t(54.43) = 5.91, p = <.01$. To ensure the two groups were equivalent, and to allow for more robust causal inference, propensity score matching estimates were utilized and a follow up t-test was done. Results again indicated a statistically significant difference between the MD group (M = 1.39, SD = .92) as compared to the non MD group (M = 3.46, SD = 2.60) related to days to progress diet $t(39.59) = 3.8, p = <.01$.

DISCUSSION

The statistical analysis bears out what the team observed at bedside, that there is a significant improvement in the ability to advance the diet in these patients. This represents a decreased reporting of nausea and subsequent decreased use of anti emetics. In MD group, the time from initiation of the protocol to the advancement in diet was 3.8 days. In the equivalent control group this number was 5.91 days.

This decrease of 2.11 days in time to the improvement of patient symptoms leading to advancement of diet represents an increase in patient and family satisfaction, decrease in acute care length of stay and, additional cost savings to the system due to a decreased need for surgical intervention in this patient population.

Only a single study have been found in the literature that addresses this symptom complex with this simple and relatively inexpensive regime[10]. We believe that additional studies should be conducted to investigate not merely the effectiveness of the MD protocol, but the potential cost savings to the Health Care System and effect on patient and family satisfaction at the end of life.

If further studies replicate our findings, and the suffering caused by these frequent sequelae of terminal illness can be reduced, MD could be proposed to the list of standards for Palliative Care therapies.

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