Finding a cystic fibrosis bowel preparation model to assist effective screening for colo-rectal cancer

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Service Improvement

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Sustained

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Summary

Research publications have reported increased digestive tract cancers in patients with cystic fibrosis (CF). The adult CF centre at The Prince Charles Hospital (TPCH) identified unexpected early

diagnoses of colorectal cancer (CRC) in young adults and recognised the difficulty achieving good bowel cleanse to visualise and identify pre-cancerous polyps. This project utilised teams from Dietetic, CF and Gastroenterology departments at TPCH to review effectiveness of standard bowel preparation compared to a modified CF bowel preparation (three times higher in volume) in patients requiring colonoscopy. Despite increasing prevalence of CRC in the literature, no studies reported practicalities of cleansing the CF bowel for CRC screening. This knowledge to action project is the journey of our health care teams' clinical questioning, identifying gaps in our knowledge, trialling a new intensive bowel preparation, comparing results and reporting outcomes of the first evidence-based CF bowel preparation to effectively screen this high-risk group of patients for CRC.

Key dates

Jan 2009

Dec 2019

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Aim

Research publications have reported increasing prevalence of digestive tract cancers in adults with

cystic fibrosis (CF). The CF Centre at the Prince Charles Hospital had unexpectedly diagnosed colorectal cancer (CRC) in some young CF adults, and recognised difficulty achieving good bowel preparation to identify pre-cancerous polyps. Growing evidence in the literature with a large 20-year study reported six-fold CRC increased risk (30-fold post lung transplant). The issue was perceived high enough to address, impact to patients and health service was perceived significant, especially with increasing longevity. There was a knowledge gap as no publications were reporting colonic clearance regimens specific to CF, and ineffective bowel preparation limited successful CRC screening.

Benefits

CF bowel preparation group had superior gastrointestinal cleanse and lower rates of inferior cleanse than standard preparation ($p<0.006$). There was higher polyp detection rate (50% v 18.5%) ($p<0.01$) with CF bowel preparation. The project manager at the Prince Charles Hospital led the preparation, submission and publication in BMC Gastroenterology (June 2019), presented at Australasian CF Conference, Perth (August 2019), locally at TPCH grand rounds, Nutrition and CF professional development, featured in “CF News” and contacted by international CF centres for advice on CF bowel preparation.

Background

Initial engagement of multidisciplinary team and stakeholders (CF, gastroenterology, dietetic departments, and patients) were formed. The project manager conducted literature reviews, (no systematic reviews existed); assisted by library staff, appraised data registry and individual CF centre CRC reports as well as reviewing publications of bowel preparation in CF and general populations. Other services in the hospital were contacted to review practices, and the project manager also led discussions with patients on perspectives, enablers and barriers. Data on current practice (standard bowel preparation) was retrospectively collated to ascertain effectiveness of bowel preparation quality.

Solutions Implemented

A “knowledge to action” framework was developed by the project manager. No funding was sought - clinical interest was the team's motive. A Multi Disciplinary Team (MDT) developed “CF bowel preparation” regimen based on clinical consensus and experience, (increased preparation volume and duration). We implemented this new regimen, developed QHEPs procedure, provided staff in-services, identified key personnel (CF Dietitians and Nurses) to educate patients, collated data on “CF bowel preparation” compared to standard. Our hypothesis was CF adults required more intensive bowel preparation to improve gastrointestinal cleanse for CRC screening. Data on consenting patients was collated and analysed; pilot reports presented intermittently at local and national levels.

Evaluation and Results

The outcomes indicated significant differences between groups:

- Intervention Group (CF bowel preparation group) had a significant higher proportion of "excellent, good and fair" gastrointestinal (GI) cleanse that standard bowel preparation and lower rates of "poor" cleanse between groups ($p<0.006$).
- Detection rates of precancerous polyps at initial colonoscopy was significantly higher in modified CF bowel preparation than standard preparation groups.
- Overall impact of this study: It primarily highlights that standard colonoscopy bowel preparation is often inadequate.
- Clinical application: CF bowel preparation improves colonic visualisation for CRC screening and achieve a higher polyp detection rate compared to standard bowel preparation.
- No other studies in the literature have demonstrated improved GI clearance with a particular CF prep regimen but this is an area of importance as the first international consensus guidelines of CRC screening in CF published in 2018 state the necessity of an intensive lavage to assist CRC screening.

Lessons Learnt

This Allied Health Training Research into Practice (AH-TRIP) knowledge to action project is our journey, reporting our clinical questioning, identifying know-do knowledge gaps, interventional implementation, evaluating outcomes and publication of evidence based “CF bowel preparation” to effectively screen this high-risk group for CRC. Our learning is of the importance of planning and developing a project and initially consulting with a range of stakeholders but identifying a smaller team committed to following through with the study. Our greatest learning of the AH-TRIP process has increased our awareness of the need to move beyond outcome evaluation. Sustaining knowledge is a large component especially at a local level to upskill local staff, and feedback to patients to further implement project findings.

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