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BOWEL PREPERATION;

CLINICAL OUTCOMES IN COLORECTAL SURGERY AFTER BOWEL PREPARATION AT PMC NAWABSHAH

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ABSTRACT… Introduction: The cleansing of intestinal contents, were considered the most important factor in the prevention of complications by most of the surgeons. While morbidity and mortality have been a matter of main concern in colorectal surgery during the past several decades. Despite these drawbacks mechanical bowel preparation is till practiced by most of the colorectal surgeons worldwide in elective colorectal surgery. So the aims of this study were to find out the frequencies of wound infections, hospital stay, anastomotic leak and wound dehiscence's in patients of two cohorts underwent elective colorectal surgery. **Study Design:** Prospective randomized control trial (RCT) study after having informed consent of participation as per described policy. **Setting:** Surgical Unit – I of People's University of Medical and Health Sciences Nawabshah. **Period:** January 2012 to March 2016. **Methods:** 112 patients of both genders from 20-65 years in age, who underwent for Elective open colorectal surgery. In MBP, Sulphate and electrolyte free 136gm of polyethylence glycol (PEG) / two sachets with three liters of water were begun over 12 to 16 hours, the day before surgery in cohorts A only. **Results:** Regarding outcomes, wound infections were 12.5% and 16% in group A & B respectively. There was no remarkable difference in post-operative length of hospital stay with mean stay of 8+2 and 9+2 in group A & B respectively. While disruption of anastomosis were 5.3% and 9% in group A & B respectively, while the frequency of incisional hernia was same in both groups. **Conclusion:** There is no benefit of enduring MBP in Elective Colorectal Surgery and can safely be performed without it.

Key words: Mechanical bowel preparation (MBP), Colorectal Surgery, SSI, bowel cleaning

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INTRODUCTION

The high incidence of infectious complications in elective colorectal surgery has been reported with preoperative mechanical bowel preparation.[1,2] The cleansing of intestinal contents, were considered the most important factor in the prevention of complications by most of the surgeons. Since long times, the presence of stool inside the bowel has been thought as the major cause of anastomotic leak.[3] It is difficult to state with precision when the preoperative mechanical bowel preparation appeared in this history of colorectal surgery. Maunsell, in early 1890's, introduced the bowel and rectum cleansing.[4] Since then, several methods of mechanical colon cleansing have been in practice.

While morbidity and mortality have been a matter of main concern in colorectal surgery during the past several decades. Mortality was more than 20% in colorectal surgery in the first half of the 20th century and was mainly attributed to sepsis and poor surgical techniques.[5] In this modern era preoperative assessment, peri-operative care, surgical techniques and concepts of multimodality treatment have led to a marked decrease in morbidity and mortality.[6]

It was thought out that this practice diminishes fecal load in the bowel and prevents anastomotic disruption by reducing fecal impaction at anastomotic site. Hence, it was considered that the risk of fecal contamination or infection of peritoneal cavity increases abdominal wounds.[7,8]

Primary colonic anastomosis is considered unsafe in unprepared bowel but there is little data to suggest that infectious complications are decreased by MBP.[9] Bowel preparation is unpleasant for patients and can be associated with complications such as dehydration, nausea, vomiting, mucosal lesions, hypokalemia and other electrolyte disturbances.[10,11]

Despite these drawbacks mechanical bowel preparation is till practiced by most of the colorectal surgeons worldwide in elective colorectal surgery.[12,13,14,15]

So the aims of this study were to find out the frequencies of wound infections, hospital stay, anastomotic leak and wound dehiscence's in patients of two cohorts underwent elective colorectal surgery.

METHODS

112 patients of both genders from 20-65 years in age, who underwent for Elective open colorectal surgery in surgical unit – I of People's University of Medical and Health Sciences Nawabshah form January 2012 to March 2016 enrolled in this prospective randomized control trial (RCT) study after having informed consent of participation as per described policy. Patients unfit for anaesthesia and surgery were not enrolled. Study population was divided into two cohorts of A, having bowel preparation and Cohort B having no bowel preparation with the help of random number table method having 1:1 by assigned residents. The samples were of equal size to maintain balance.

Mechanical bowel preparation (MBP) is defined as a preparation given prior to surgery to clear faecal material from the bowel lumen.

In MBP, Sulphate and electrolyte free 136gm of polyethylence glycol (PEG) / two sachets with three liters of water were begun over 12 to 16 hours, the day before surgery in cohorts A only While, BP, Pulse rate, urine output and serum electrolytes before and after preparation was monitored. Further clear liquid diet and low residence diet were 24 hours before surgery to group A and B were allowed respectively.

Both groups received combination of 3rd generation cephalosporin (1gm) with metro midazole (500mg) intra venously one hour before surgery. Patients were discharged when condition was satisfactory. The first follow-up was on 10th day after discharge then fort-mighty for 3 months all the study required finding were recorded by assigned residents in the office of author.

Outcomes / end point of study

1. Wound infection
2. Disruption of anastomosis
3. Post-operative hospital stay
4. Wound Dehiscence.

Statistical Analysis was performed using SPSS software version 18.0 (SPSS Inc. Chicago Illinois) for windows ordinal variable were analyzed using X^2 test, nominal variable were analyzed with fisher exact test, and P<O.J was set for statically significance.

RESULTS

One hundred twelve patients underwent for colorectal surgery in this study are shown with their basis characteristics of demographics, age, gender, pre-operative co-morbidities, biopsy and final diagnosis in table no. 1.

While limited RT hemicolectomy, standard or extended RT hemicolectomy. Left hemicolectomy, sigmicolectomy, APR (Abdominal perineal resection) and lower anterior resection were performed according to site, nature and extent of disease.

Regarding outcomes, wound infections were 12.5% and 16% in group A & B respectively. There was no remarkable difference in post-operative length of hospital stay with mean stay of 8+2 and 9+2 in group A & B respectively.

While disruption of anastomosis were 5.3% and 9% in group A & B respectively, while the frequency of incisional hernia was same in both groups.

Characteristics Patients	Group A	Group B
No. of participates	56	56
Male	45	42
Female	31	34
Age median	44	43
Range	(20-60)	(21-58)
HTN	12	10
Diabetes Mellitus	08	06
Ischemic Heart Disease	07	09
Previous surgery	04	06
Diagnosis after Biopsy Ileocaecal tuberculosis	08	05
Carcinoma of rectum	17	19
Carcinoma of sigmoid colon	07	08
Carcinoma descending colon	02	01
Carcinoma seplenic flexure	06	03
Carcinoma transverse colon	02	03
Carcinoma hepatic flexure	05	07
Carcinoma Ascending colon	06	08
Carcinoma caecum	03	02

Table-I.

Wound infection	07 (12.5%)	09 (16%)
Post-operative day in hospital stay	(6-30) days mean 9.57	(7-28) days mean 8.67
Disruption of anastomosis	03	05
Wound dehiscence	02	02

Table-II. Outcomes in two groups of study

DISCUSSION

Historically, the infection is the most common risk factor in health outcomes of surgery in general and colo-rectal in particular, with reason that high bacterial load in contents of feces come in contact with newly performed anastomosis, and at this fear called for pre-operative mechanical bowel preparation in surgical practice since last five decades.[16,17,18] However, numerous reports are indicating that without MBP (Mechanical bowel preparation) not only the frequencies of complications like infections are decreased but it also remains to be more safe [19,20,21,22,23,24,25]. So this study is attempted to report on the with and without MBP outcomes and evolve the experience in our part of world.

Our study, demonstrated no significant difference in rates of infections in patients having MBP (12.5%) and having no MBP (16%), what the same inference is drawn by many studies in medical literature [23,12,13,14,26,27,28]. Saha et al and Kim YW et al. in 2014 notified that elective colorectal surgery without MBP neither impair healing of colonic anastomosis nor increase the risk of leakage.[29,30]

Hence, in perspective to inferences of numerous studies, the BMP has largely been discontinued in Europe, USA and Australia.[31,32,33] However, in this context non-randomized studies are showing very conflicting results for rates of infections between the groups of patients having and not having MBP underwent colorectal surgery [9,11,34]. This study has not found any significant difference in post-operative hospital stay, anastomotic leak and wound dehiscence between two groups as shown in table no. 2, and same is the observations in other studies of Jorgensen et al [35] and slim et al [36] and so on so [9, 11,34,37,38,39]. The patients sampling and study quality were under strict peer assessment, hence, this study may be comparable with other studies in colorectal surgery.

CONCLUSION

There is no benefit of enduring MBP in Elective Colorectal Surgery and can safely be performed without it.

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