

COMPARISON OF MECHANICAL BOWEL PREPARATION VERSUS REGULAR DIET BEFORE VAGINAL PROLAPSE SURGERY: A RANDOMIZED CONTROLLED TRIAL

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ABSTRACT

Objective: The objective of this study was to compare patient's response rate with and without mechanical bowel preparation before vaginal prolapse surgery.

Study Design: Randomized controlled trial.

Place and Duration of Study: This study was carried out at the Department of OBGYN DHQ Teaching Hospital Rawalpindi from 7th Jan 2017 to 7th Jul 2017.

Material and Methods: After approval from hospital ethical committee, a total of 60 patients fulfilling inclusion and exclusion criteria were taken. They were randomly divided into 2 equal groups using lottery method. In group-A the patients had Mechanical bowel preparation and in group-B patients had their regular diet before vaginal prolapse surgery (hysterectomy, anterior or posterior repair) and were just kept NPO from midnight.

Results: Total 60 patients were randomly divided into two equal groups. Mean age (years) in the study was 52.78 ± 4.87. Patient response in terms of good response (absence of nausea, vomiting and anal irritation) with bowel preparation was 19 (63.3%) and without bowel preparation was 16 (53.3%). The patient response in terms of average response (having one symptom) with bowel preparation was 9 (30%) and without mechanical bowel preparation was 14 (46.7%). Only 2 patients (both in group A) had poor response (presence of 2 or more symptoms). This was statistically not significant (*p*-value 0.188).

Conclusion: The study concluded that there was no difference in patient's response with and without mechanical bowel preparation before vaginal prolapse surgery so there is no need of subjecting patients to bowel preparation before vaginal prolapse surgery.

Keywords: Hysterectomy, Mechanical bowel preparation, Vaginal prolapse.

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INTRODUCTION

Vaginal prolapse is a clinical condition characterized by bulging of the top of the vagina into the lower vagina or outside the opening of the vagina due to disruption in the functionality and strength of the levator ani muscles, endopelvic fascia and ligaments or the utero-sacral-cardinal ligament complex^{1,2}. Vaginal prolapse affects between 3 and 50% of women in the developed world depending on whether the definition is based on symptoms or anatomic evaluation^{3,4}. Despite the high incidence, the number of patients requiring surgery and the cost, the optimal surgical technique to repair vaginal prolapse has yet to be fully determined⁴.

Most vaginal prolapses will gradually

worsen over time and can only be fully corrected with surgery. However, the type of treatment that is appropriate to treat a vaginal prolapse depends on factors such as the cause and severity of the prolapse, whether the woman is sexually active, her age and overall medical status, her desire for future childbearing, and her personal preference⁵. If a woman develops symptoms of one type of vaginal prolapse, she is likely to have or develop other types as well. The typical surgical strategy is to correct all vaginal weaknesses at one time. Surgery is usually performed while the woman is under general anesthesia. Some women receive a spinal or epidural anesthesia. The type of anesthesia given usually depends on the anticipated length of the surgical procedure. Laparoscopic surgery is a minimally invasive surgical procedure that involves slender instruments and advanced camera systems. This surgical technique is becoming more common for

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securing the vaginal vault after a hysterectomy and correcting some types of vaginal prolapse such as enteroceles or uterine prolapses⁵. Women who undergo surgery for vaginal prolapse repair should normally expect to spend 2-4 days in the hospital depending on the type and extent of the surgical procedure. After surgery, women are usually advised to avoid heavy lifting for approximately 6-9 weeks⁶⁻⁷. Pelvic organ prolapse (POP) is one of many pelvic floor disorders in women. POP is highly prevalent, and can negatively impact a woman's quality of life^{8,9}. Among women aged 50-79 years in the Women's Health Initiative, 41% had POP, with cystocele being the most common. Among 1,000 women seeking routine gynecologic care at six medical centers, 35% had stage 2 prolapse (vaginal walls or uterus lie within 1 cm of hymen) and 2% had stage 3 prolapse (vaginal walls or uterus at least 1 cm beyond the hymen)¹⁰.

Mechanical bowel preparation (MBP), including oral or rectal solutions, before surgery has been widely used in many surgical specialties¹². Mechanical bowel preparation is thought to offer several advantages to the surgeon in abdominopelvic surgery, including enhanced visualization of the surgical field, improved intraoperative bowel handling, and reduced fecal contamination in the setting of bowel injury. This routine practice, however, is largely untested and must be weighed against patient risks and discomfort associated with mechanical bowel preparation¹¹. Mechanical bowel preparation (MBP) continues to be widely used in gynecologic surgery, with the aim of reducing post-operative complications and improving the view and handling conditions in the surgical field. It is reported that MBP is an unpleasant patient experience and may be associated with adverse effects such as dehydration and electrolyte imbalance¹².

Mechanical bowel preparation aims to decrease the volume of fecal content in the colon, which thereby decreases the total colony count of bacteria. In elderly patients or those with underlying renal dysfunction, mechanical bowel preparation may incur a significant risk of fluid

shifts and severe electrolyte derangements. Suggested mechanisms for the increased infectious morbidity associated with mechanical bowel preparations include enhanced bacterial translocation across the lumen and increased bowel inflammation¹⁶.

The objective of this study was to compare patient's response rate with and without mechanical bowel preparation before vaginal prolapse surgery.

MATERIAL AND METHODS

It was a randomized controlled trial conducted at the department of Obs and Gynae DHQ Teaching Hospital Rawalpindi. The duration of study was six months i.e. 7th Jan 2017 to 7th July 2017. Simple, random sampling technique was used for data collection. Inclusion criteria was females aged 42-65 years scheduled to undergo reconstructive vaginal prolapse surgery (vaginal hysterectomy, anterior repair or posterior repair) whereas females with history of a total colectomy, a diagnosis of inflammatory bowel disease, colorectal cancer receiving treatment and chronic constipation per Rome III guidelines were taken as exclusion criteria. The overall patients' response was assessed after 24 hours of surgery by asking them about the symptoms of Nausea, Vomiting and Anal irritation. Response was considered good if the patient has none of the above symptoms, average if patient has any one symptom and poor if patient has 2 or more symptoms. After approval from hospital ethical committee a total of 60 (30 in each group) patients fulfilling inclusion and exclusion criteria were taken from Department of Obs and Gynae DHQ teaching hospital Rawalpindi. Demographic information like name, age, and contact details were obtained after taking an informed consent from patients or attendants. Patients were randomly divided into 2 equal groups using lottery method. In group-A the patients had mechanical bowel preparation and in group-B patients had their Regular diet before vaginal prolapse surgery. One day prior to surgery, verbal and written instructions for group-A were

to intake a clear-liquid diet, administration of two separate saline enemas at 4:00 pm and at 6:00 pm along with nothing by mouth after midnight on the day of surgery. Saline enemas were chosen as the intervention as these are the institutional standard for those surgeons who use a mechanical bowel preparation. Instructions given to the control group included continuation of a regular diet and nothing by mouth after midnight on the day of surgery. Participants were asked not to tell the bowel preparation technique to the surgeon. Both groups were given written instructions on a high fiber diet (20–25 g/day) as

had any one symptom and poor if patient had 2 or more symptoms. Thirty five (58.3%) women had a good response when they were assessed within 24 hours of surgery and there was no nausea, vomiting and anal irritation whereas 23 (38.3%) women had an average response and 02 (3.3%) women had poor response. In the study, patient's response rate in terms of good and average response with mechanical bowel preparation was 19 (63.3%) and 9 (30%) respectively and without mechanical bowel preparation it was 16 (53.3%) and 14 (46.7%) respectively which was statistically not significant (p -value 0.188), as

Table: Comparison of patients response in both the groups.

Patient Response	Group A	Group B	Total	p -value
Good	19 (63.3%)	16 (53.3%)	35 (58.3%)	0.188
Average	9 (30.0%)	14 (46.7%)	23 (38.3%)	
Poor	2 (6.7%)	0 (0.0%)	2 (3.3%)	

a guideline to follow postoperatively. Response was measured after 24 hours of the procedure. All data was collected by researcher herself.

All the data was analyzed with SPSS version 20. Mean \pm S.D was used for quantitative data, i.e. age (years). For qualitative data, i.e. parity and patient's response frequencies and percentages were calculated. To compare patient's response in both study group, chi-square test was applied. Data was stratified for age, parity, previous history of gynecological surgery to address effect modifiers. Post stratification chi-square test was applied to rule out effect modifiers. A p -value ≤ 0.05 was considered as significant.

RESULTS

Total 60 patients were included according to the inclusion criteria of the study. Patients were randomly divided into two equal groups. Group-A the patients had mechanical bowel preparation and in group-B patients had their Regular diet before vaginal prolapse surgery. Mean age (years) in the study was 52.78 ± 4.87 .

Patient's response rate was measured in terms of frequency and percentage in the study. Response was considered good if the patient had none of the above symptoms, average if patient

shown in table.

DISCUSSION

Pelvic organ prolapse is a prevalent condition affecting 1 in every 10 women in the United States. Between 1976-2006, 5 million prolapse procedures were performed in the United States. The life-time risk of prolapse surgery is 11% for symptomatic women; with an additional 30% risk of re-operation¹³. Mechanical bowel preparation is a common, but not a universal practice among surgeons operating in the abdominal or pelvic area. Its practice in gynecologic surgery was originally adopted from colorectal surgery where it was perceived to reduce surgical site infection, without clear evidence of its benefit¹³. A 2011 Cochrane review of the use of mechanical bowel preparation for elective colorectal surgery concluded that there is no significant evidence that patients benefit from its use or that of rectal enemas¹⁴. Additionally, patients may have more side effects with gut preparation and diet changes, including gastrointestinal disturbances, dehydration, and electrolyte imbalance.

Despite the large pool of data supporting the omission of mechanical bowel preparations and

changing guidelines, clinical practice has been slow to change; A 2005 survey of Northern European surgeons found that between 50 and 95% continue to use preoperative bowel preparation¹⁷. Although the majority of the evidence regarding bowel preparations is found in colorectal surgery literature, studies have also been performed specifically targeting a gynecologic population. With regard to gynecologic laparoscopy in particular, one proposed role for bowel preparation includes cases where bowel resection is planned or thought to be high risk for inadvertent bowel injury (e.g. severe adhesions, endometriosis, previous history of radiation to operative field, carcinoma). Bowel injury is a rare complication of laparoscopy; The incidence being at 0.13% as stated by a 2004 literature review¹⁸. Adding to this fact that only a small number of gynecologic cases that will result in bowel injury, the data from colorectal surgery support discontinuing routine mechanical gut preparation. In addition, it has been suggested that clearing of bowel contents may help in visualizing and handling of gut during laparoscopic surgery.

While evidence against routine use in colorectal and laparoscopic gynecologic surgery exists and is changing practice, many pelvic reconstructive surgeons continue to use some form of preoperative bowel preparation¹³. In our study, patient response rate with and without mechanical bowel preparation before vaginal prolapse surgery, in terms of good response rate was 63.3% and 53.3%.

In a randomized trial, Muzii *et al* studied the effects of bowel preparation with oral sodium phosphate solution in patients undergoing laparoscopy for benign gynecologic indication; The authors did not find any advantage regarding preparation of surgical field, operative time, intra or postoperative complications or length of stay¹⁴. Conversely, the mechanical bowel preparation group reported significantly greater preoperative discomfort. Another randomized study compared mechanical bowel preparation to a seven day low residue diet in patients planned for laparoscopy for benign gynecologic disease. The

preoperative lowresidue diet showed lesser colonic fecal residue and may potentially decrease gaseous distension of colon. In the study mentioned, both groups were found to have similar surgical field exposure; However, the low-fiber diet was better tolerated¹⁴.

A recent study in 2014 was conducted on 150 women underwent vaginal prolapse surgery randomized (75 women to intervention and control). They reported patient satisfaction (completely, somewhat) with their bowel preparation was lower in women randomized to the bowel preparation (66% intervention vs. 94% control group, $p<0.001$). The mechanical bowel preparation group was less likely to report "complete" satisfaction compared to the control group¹³. The purpose of this study was to compare patient's satisfaction after mechanical bowel preparation in females undergoing vaginal prolapse surgery. As no local study is available and international data on vaginal prolapse surgery is limited, the available study showed higher patient's satisfaction without mechanical bowel preparation. Through this study we find less patient's satisfaction with mechanical bowel preparation then in future we will avoid it as it may require preoperative hospitalization, and may cause dehydration and electrolyte disturbance. Our ultimate goal is to gain maximum patient's satisfaction after such complex surgeries.

CONCLUSION

The study concluded that there was no difference in patient's response with and without mechanical bowel preparation before undergoing vaginal prolapse surgery (vaginal hysterectomy, anterior or posterior repair). So there is no need of preoperative hospitalization and gut pre-preparation which may cause dehydration and electrolyte disturbance, in order to gain maximum patient's satisfaction after such complex surgeries.

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CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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