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ORIGINAL RESEARCH

An observational study to analyse the preoperative factors affecting postoperative stoma complications

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Abstract

Aim: Study to analyse the preoperative factors affecting postoperative stoma complications.

Material and methods: All patients who underwent stoma formation, for elective or emergency indications were included in this study. Patients who underwent stoma formation both elective and emergency were included. Parameters of gender, age, BMI, indication for stoma formation, comorbidities, use of neo adjuvant chemotherapy, permanent or temporary stoma, type of stoma (loop /end), stoma localization was compared. Details of stoma complications up to 6 weeks after surgery was analysed. History, Physical examination of patient including general condition, Complete OT profile and Ultrasonography of whole abdomen were studied.

Results: This research included 63.33% male patients and 36.67% female patients. The patients' average age was 27.58±4.58. BMI should be in the range of 18.5-24.9kg/m2. Below 18.5 is considered low, while beyond 24.9 is considered excessive. The patients' average BMI was 21.69±3.69. On the basis of demographic profile, there is no significant correlation with complication. Diabetes accounted for 33.33% of patients, with hypertension accounting for 25%, coronary artery disease accounting for 25%, and chronic respiratory illness accounting for 16.67%. The majority of patients (28.33%) had ileal perforation. Complications occur in 75% of emergency patients and 25% of elective patients. The kind of surgery (elective/emergency) had no statistically significant relationship with stoma problems (p-value= 0.27). 95% had a temporary stoma, 3% had a permanent stoma, 71.67 had a loop stoma, and 28.33% had an end stoma. We had 71.67% end stomas and 28.33% loop stomas in our research sample. A couple loop colostomies are also included. The data analysis, however, did not reveal any statistically significant variations in complication when comparing these two forms of stomas. The computed p-value was 0.74. Hemorrhage (3.33%), thick adhesions (1.67%), perforated peritonitis (1.67%), and extensively gangrenous bowel (1.67%) were all present during the procedure. The majority of patients have skin discomfort after two weeks, and there are no complications.

Conclusion: We conclude that in our research did not uncover any statistically significant association between examined parameters and stoma associated problems.

Keywords: loop stoma, end stoma, ileal perforation, elective, emergency

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Introduction

Stomas are the most prevalent surgical conditions for general surgeons. An intestinal stoma is a surgically created aperture of the intestine on the anterior abdominal wall.[1-4] Stomas are used to divert the faecal stream away from the distal bowel in order to enable a distal anastomosis to heal as well as to alleviate blockage in an emergency case. Depending on their function, it may be temporary or permanent.[5] Although a lifesaving treatment, it may result in a substantial number of problems. Early problems (up to 30 days after surgery) are distinguished from late complications (greater than 30 days after surgery).[6,7]

It is difficult to draw firm conclusions about the overall incidence because statistically reported rates of complications of stomas vary widely in the literature.[8] The first ventral colostomy was performed in 1710 by Littre of Paris on a baby with imperforate anus.[9] Several reports focus solely on ileostomies or colostomies. There is also a broad range in reoperation rates for loop ileostomies, which may be anywhere from 5.7% to 41%, and inconsistent evidence exists about whether complication rates are equal with colostomies and ileostomies[10-12] or greater occurrences with ileostomies.[13] The rates at which stoma complications arise also vary, of course, depending on the specifics of each patient's situation. Several studies have found that emergency operations involving gross peritoneal soiling, gangrenous or perforated intestine, and the creation of stomas in debilitated or malnourished patients are not associated with increased postoperative morbidity.[12-15] The very common complications of stoma creation include improper site selection, vascular complications, retraction, peristomal skin irritation, and peristomal infection/abscess/fistula.

Material and methods

A cross sectional study was done in the department of sugary, after taking the permission from the ethical committee. All patients who underwent stoma formation, for elective or emergency indications were included in this study.

Inclusion Criteria

- Patients of all age groupswho underwent stoma formation elective or emergency due to any indication.
- All patients with stoma with other co-morbidities.

Exclusion Criteria

- Patients not falling in inclusion criteria
- All patients who did not give consent to be a part of study
- Patients that were lost to follow up.

Methodology

The data was collected on pre-structured proforma for the study. Patients who underwent stoma formation both elective and emergency was included. Parameters of gender, age, BMI, indication for stoma formation, comorbidities, use of neo adjuvant chemotherapy, permanent or temporary stoma, type of stoma (loop /end), stoma localization was compared. Details of stoma complications up to6 weeks after surgery was analysed. History, Physical examination of patient including general condition, Complete OT profile and Ultrasonography of whole abdomen were studied. Statistical analyses was used to obtain results.

Statistical analysis

Data analysis was performed using SPSS 18 for Windows software (SPSS Inc, Chicago, IL), and descriptive statistics was used to summarize the data. The statistical significance of the data was evaluated by applying the Pearson’s chi-squared test for the relationship between

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categorical variables. The Mann-Whitney U test will be used to analyze the difference between the measured values of 2 groups of patients (those undergoing emergent versus those having nonemergent surgery) after confirming with the Kolmogorov-Smirnov test whether the 2 random samples had the same statistical distribution. Logistic regression analysis will be used to determine the independent risk factors for stoma complication. A P value <.05 was considered to be statistically significant.

Results

This research included 63.33% male patients and 36.67% female patients. The patients' average age was 27.58±4.58. BMI should be in the range of 18.5-24.9kg/m2. Below 18.5 is considered low, while beyond 24.9 is considered excessive. The patients' average BMI was 21.69±3.69. There is no statistically significant relationship between complication and demographic profile.

Table 1. Demographic profile of the patients

Parameter	Number /mean	Percentage
Gender		
Male	38	63.33
Female	22	36.67
Age	27.58±4.58	
BMI	21.69±3.69	

33.33% of patients had diabetes, 25% had hypertension, 25% had coronary artery disease, and 16.67% had chronic respiratory illness.

Table 2. Comorbidities of the patients

Comorbidities	Number	Percentage
Diabetes	20	33.33
Hypertension	15	25
CAD	15	25
Chronic respiratory disease	10	16.67

Most of the patients (28.33%) show ileal perforation.

Table 3. Indication of stoma formation

Indication of stoma formation	Number	Percentage
Ileal perforation	17	28.33
Adenocarcinoma ascending colon	4	6.67
Caecal perforation	7	11.67
Sma syndorme	8	13.33
Anorectal malformation	8	13.33
Adenocarcinoma sigmoid colon	1	1.67
distal ileal stricture	4	6.67
Gangrenous bowel	8	13.33
Gangreonous bowel with acute intestinal obstruction	1	1.67
Obstructed inguinal hernia with gangrenous bowel	1	1.67
Adenocarcinoma of descending colon	1	1.67

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Complications occur in 75% of emergency patients and 25% of elective patients. Setting of surgery (elective/emergency) did not demonstrate any statistically significant connection to stoma problems (p-value= 0.27).

Table 4 Time of stoma formation

Time of stoma formation	Number	Percentage	P value
Emergency			
Complication			
Yes	45	75	
No			0.27
Elective			
Complication			
Yes	15	25	
No			

95% had a temporary stoma, 3% had a permanent stoma, 71.67 had a loop stoma, and 28.33% had an end stoma. We had 71.67% end stomas and 28.33% loop stomas in our research sample. A couple loop colostomies are also included. The data analysis, however, did not reveal any statistically significant variations in complication when comparing these two forms of stomas. The computed p-value was 0.74.

Table 5. Type of stoma

Type of stoma	Number	Percentage
Temporary	57	95
Permanent	3	5
Loop	43	71.67
End	17	28.33

Intra-op complication is present in 80% patients and pre op in 20% patients.

Table 6. Stoma localization

Stoma localization	Number	Percentage
Intra-op	48	80
Preop	12	20

Intra operational problem had manifested such as hemorrhage(3.33%), thick adhesions(1.67%), perforation peritonitis(1.67%) and extensively gangrenous bowel(1.67%).

Table 7. Intra operative difficulty

Intra operative difficulty	Number	Percentage
Hemorrhage	2	3.33
Dense adhesions	1	1.67
Perforation peritonitis	1	1.67
Grossly gangrenous bowel	1	1.67

Most of the patients show skin irritation within 2 week after that there was no complication.

Table 8. Postoperative course

Postoperative course					
	1wk	2wk	3wk	6wk	12wk
Skin irritation	2	15			
Retraction	4				
Mucocutanous seperation	1				
Necrosis	1				

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Prolapse			4		

Discussion

According to the research, the most prevalent underlying illnesses that result in stoma development include colon cancer, bladder cancer, ulcerative colitis, Crohn's disease, and trauma procedures. Following the development of a stoma, a variety of stoma-related problems might emerge, making the stoma-creation operation very morbid. These might include immediate postoperative problems such as stomal congestion, gangrene, retraction, parastomal abscess, or peristomal irritation, or late complications such as stomal prolapse, stomal stenosis, and parastomal hernia. In the literature, the reported incidence of these disorders varies greatly.[14-16]

Surgical problems are substantially more likely in abdominal surgical operations than in treatments done elsewhere, such as mastectomy and parathyroidectomy. [16] Despite ongoing efforts to improve preoperative patient preparation and surgical techniques, patients are still at risk of POCs, which sometimes necessitates emergency surgical intervention and high costs.[17] Additionally, identifying risk factors may provide an opportunity to improve perioperative care by managing preoperative risk factors and lowering the risk of POCs and mortality.[18] Only a few of these studies, however, have explored a broad range of possible confounding variables and described the relative effect of these factors on individual outcomes. The authors of Manilich et alresearch .'s focused only on the most significant complications of colorectal surgeries, such as readmission, reoperation, sepsis, anastomotic leak, small intestinal obstruction, SSI, abscess, transfusion need, and venous thromboembolism. Manilich et al. explored the variables related with postoperative problems in individuals following colorectal surgery in another research. [19]

The patients' average age was 27.58±4.58. BMI should be in the range of 18.5-24.9kg/m2. Below 18.5 is considered low, while beyond 24.9 is considered excessive. On the basis of demographic profile, there is no significant correlation with complication. For the sake of analysis, the cut off age was set at 60 years old, as in most of the research included here. [20] Despite the fact that prior research found that being over 60 years old was a risk factor for the development of problems, age did not seem to be a risk factor in our study.[21]

This research included 63.33% male patients and 36.67% female patients. There were no substantial references to gender as a factor contributing to stoma problems. BMI (particularly high BMI) is considered a predisposing factor leading to stoma complications.[22] In this research the mean BMI of the patients 21.69±3.69. According to globally recognised standards, the normal BMI range is 18.5 to 24.9 kg/m2 (both values included). Any number below this range is low and beyond the range is deemed high respectively.[23] The existence of specific comorbidities such as diabetes, hypertension and CAD states have been found as a factor accountable in producing problems after stoma surgery.[24]

As with the preceding aspect, the procedures and motives for doing the two operations vary. There was no specific study observed comparing loop stoma with end stoma (as most studies cited in the bibliography look at colostomy as end and ileostomy as loop) (as most studies mentioned in the bibliography look at colostomy as end and ileostomy as loop). We had 71.67% end stomas and 28.33% loop stomas in our research sample. A couple loop colostomies are also included. The examination of the data however did not demonstrate any statistically significant differences in complication between these 2 forms of stomas.[25] The p-value estimated was 0.74. Hemorrhage (3.33%), thick adhesions (1.67%), perforated peritonitis (1.67%), and extensively gangrenous bowel (1.67%) were all present during the procedure. comparable research was done by other authors .[24]

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Conclusion

We conclude that in our research did not uncover any statistically significant association between examined parameters and stoma associated problems.

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