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Morbidity Pattren in Patients of Ileostomy: An Observational Study

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Abstract

Introduction: An ileostomy is an opening constructed between the small intestine and the abdominal wall usually by using distal ileum but sometimes more proximal small intestine**.** It is a lifesaving surgery that enables the individuals with co-morbidities to recover from the acute stress of a major surgery. An ileostomy may be permanent or temporary depending upon the reason for surgery. An ileostomy is associated with multiple morbidities.

Aims & Objectives: To study the morbidity in patients with ileostomy.

Material and Method: The present study was a prospective and descriptive study which was conducted on patients admitted in general surgery department of Shri Guru Ram Rai Institute of Medical and Health Sciences in patients who underwent ileostomy as a part of abdominal surgery.Total number of 50 patients were studied. The parameters studied were site of ileostomy, dermatitis, abdominal pain, stomal complications, odour, wound infection, nutritional status, anaemia, diarrhoea, electrolyte imbalance and psychological problems at 2wk, 1mth, 2mth, 3mth post-operative period.

Conclusion : The study shows significant morbidity like electrolyte abnormalities (52%), skin problems(32%), stoma diarrhoea(54%), psychosocial disturbances(50%) in first 2 week post surgery.It also shows that Typhoid and tubercular pathology is the commonest indication for loop ileostomy.It is of paramount importance that ileostomies are properly sited, improper siting may increase the incidence of dermatitis, leakage, foul odour and other complications.Whenever possible ileostomy should not be located too proximal to the terminal ileum, to avoid high output, electrolyte abnormalities and malnutrition.Despite of ileostomy, proper care of peristomal skin, nutritional status, taking food with high residue and proteins, electrolyte and fluid requirements of patients can be managed and can lead to near normal life style of patient.

Keywords: *Ileostomy, Morbidity pattern, Electrolyte abnormalities, Skin complications, Stoma diarrhoea, psychological disturbances.*

Introduction

An ileostomy is an opening constructed between the small intestine and the abdominal wall usually by using distal ileum but sometimes more proximal small intestine. [1] It is a lifesaving surgery that enables the individuals with co-morbidities to recover from the acute stress of a major surgery. However, the surgical construction of an ileostomy must be precise because the content is liquid, high volume and corrosive to the peristomal skin.[2] Ileostomy is needed to be performed for many different disease and conditions such as abdominal surgery done for intestinal perforation with co-morbid conditions, ulcerative colitis, familial adenomatosis coli. [3] An ileostomy may be permanent or temporary depending upon the reason for surgery. There

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are many types of ileostomy like end-ileostomy, loop ileostomy, loop-end ileostomy, continent ileostomy. [4] An ileostomy is associated with many morbidities. Due to the electrolyte rich and corrosive nature of ileostomy content, it is associated with multiple morbidities.

Materials and Method

The present study was a cross-sectional study which was conducted on patients admitted in general surgery department of Shri Guru Ram Rai Institute of Medical and Health Sciences in patients who underwent ileostomy as a part of abdominal surgery. Total number of 60 patients were studied. The study period was from October 2016 to march 2018. The source of data are patients with associated abdominal conditions admitted as in patients, in various surgical wards in Shri Mahant Indresh Hospital and Shri Guru Ram Rai Institute of Medical and Health Sciences, Dehradun who underwent laparotomy and ileostomy

Inclusion criteria: Patients who underwent ileostomy in general surgery department of SGRRIM & HS Dehradun and were willing to be a part of study after giving proper consent.

Exclusion criteria : Patients not willing to participate in the study. Patients who do not report for follow-up. In our study out of total 60 patients, 6 patients who did not turn up for follow up were excluded from the study and 4 patients who died in post-operative period (due to other co-morbid conditions like cardiac or other systemic pathologies) were also excluded from the study, hence they were excluded from the study.

Table 1: Distribution of cases on type of stoma created, indication of stoma, disease etiology and intraoperative findings.

Parameter	No. (%)
Types of stoma	
Loop ileostomy	39 (78)
Double barrel ileostomy	09 (18)
End ileostomy	02 (4)
Indication of stoma	
Perforation	26 (32)
Obstruction	14 (28)

Cont... **Table 1: Distribution of cases on type of stoma created, indication of stoma, disease etiology and intraoperative findings.**

Blunt trauma abdomen (gangrenous bowel)	04 (8)
Strangulated hernia	02 (4)
Ca colon	01 (2)
volvulus	01 (2)
Ca rectum (inoperable)	01 (2)
Faecal fistula due to R.A. leak	01 (2)
Etiology/HPE	
Enteric perforation	18 (36)
Tubercular	12 (24)
Appendicular abscess	02 (4)
Non-specific inflammation	16 (32)
Malignancy	02 (4)
Intra-operative findings	
Ileal perforation	16 (32)
Gangrenous gut	08 (16)
Adhesions	08 (16)
Inflammatory lump	04 (8)
Strictures'	04 (8)
Other's	10 (20)

Table 2: Distribution of cases with hypoalbuminemia in relation to distance of stoma from i-c junction

Distance from i-c junction	Cases No. (%)	Hypoalbuminemia (<3.5 mg/dl) (%)
<1 feet	05 (10)	01 (2)
2-3 feet	30 (60)	07 (14)
>3 feet	15 (30)	12 (24)

Table 3: Distribution of complications according to duration of follow up visits.

Complications/ condition	Duration of follow up			
N= 50	2 week No.(%)	1 month No.(%)	2 month No.(%)	3 month No.(%)
Electrolyte abnormality				
Hyponatremia	16 (32)	12 (24)	02 (04)	
Hypokalemia	5 (10)	5 (10)	01 (02)	
Hypocalcaemia	10 (20)	4 (08)	0 (0)	
Dermatitis/skin ailments				
Irritation	08 (16)	08 (16)	05 (10)	1 (2)
Parastomal site Itching	06 (12)	4 (8)	1 (2)	0 (0)
Necrosis	0 (0)	01 (2)	0 (0)	0 (0)
Excoriation	02 (4)	0 (0)	0 (0)	0 (0)
Stoma Diarrhorea				
With Flatulent dyspepsia	16 (32)	3 (6)	0 (0)	0 (0)
Without flatulent dyspepsia	11 (22)	01 (2)	0 (0)	0 (0)
Nutritional status (albumin level)				
Healthy (>3.5) mg/dl	45 (90)	30 (60)	35 (70)	0 (0)
Undernourished (<3.5) mg/dl	05 (10)	20 (40)	15 (30)	0 (0)
Malnourished (<2) mg/dl	0 (0)	0 (0)	0 (0)	0 (0)
Anemia				
Hb level <11(mild)	18 (36)	14 (28)	06 (12)	1 (2)
Hb level 8-10(moderate)	12 (24)	11 (22)	4 (8)	1 (2)
Hb level <8(severe)	5 (10)	03 (06)	1 (2)	0 (0)
Psychological problems				
Insomnia	06 (12)	02 (4)	01 (2)	0 (0)
Depression	18 (36)	15 (30)	08 (16)	2 (4)
Poor social acceptance	1 (2)	0 (0)	0 (0)	0 (0)
Stomal complications				
Retraction	02 (4)	02 (4)	02 (4)	2 (4)

In our study out of total 50 patients only 2 patients i.e. 4% suffered stoma retraction. Both cases were managed by refashioning of stoma

Discusion

In our study electrolyte imbalance is more in first month post-op. 26 patients (52%) in first 2 weeks and 17 patients (34%) in first month suffer hyponatremia

and hypokalemia. 20% suffer hypocalcemia in 2 weeks and 8% in 1 month. Hyponatremia was more prevalent i.e.21 patients (42%) then hypocalcemia and hypokalemia. Electrolyte imbalance shows improving trend as time progresses most likely due to improved diet and physiological adaptations of body. According to review of literature[5] electrolyte imbalance occurred in 0.8 to 16.7 % cases but in our study it occurred in 52% cases, it may be largely due to high incidence of emergency laparotomy patients in our set-up as most of these patients were in shock and dehydrated with poor nutritional status. They were presented in hospital quite late post bowel injury/bowel disease. **Shellito PC et al** [6] stated in their study that electrolyte imbalance is more during 3rd to 8th post-op day but in our study it was found immediately from post-op day one to 2-4 week and it was also largely attributed to emergency laparotomies and condition of dehydration and shock at time of presentation in our hospital.

Others studies[7,8] said that skin complication occur in 18% to 55 % cases, this large number in their study was more attributed to poor siting of stoma, difficult to fit stomas & frequent appliance change but in our study it was not mechanical but chemical dermatitis due to high output/effluent and acidic nature of stoma output. The decreasing trend of skin complications in our study as time progress post-ileostomy is largely due to better ileostomy care provided both by stoma therapist and trained medical/paramedical staff who regularly counsel and also trains family members about stoma care, change of ileostomy bag, how to use adhesives, zinc paste and silver preparation ointments for peristomal skin care.

Fig-1 Ileostomy (skin necrosis)

Fig-2 Ileostomy (skin excoriation)

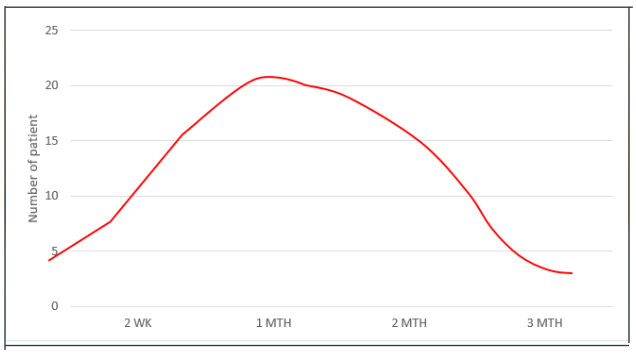
Some other studies[8] stated that stoma diarrhoea occurs in only 3.98% of cases, which may be due to the fact that author did not mention the time of observation in post-op period whereas our study was conducted on a regular basis and in post-op period gradual decline from 54% to zero percent in 2 months was observed. Large number of stomal diarrhorea in our study may be attributed largely to variation in dietary pattern. Patients were used to of taking more fluid and less roughage in their diet responsible for diarrhoea. Also as most of our cases were emergency laparotomy with patients presenting in dehydrated and electrolyte imbalance state. A recent study[8] suggested a wound infection rate of 9.21 %. In our study low stoma site infection may be attributed to proper pre-op siting of stoma by surgeons, classical surgical techniques adopted by surgeon and traditional spigot configuration adopted by them. Moreover, patient care and education provided to them regarding stoma bag changing and peristomal skin care is responsible for low stoma site infection. In our study out of total 50 patients only 2 patients i.e. 4% suffered stoma retraction(fig.3).

Chaudhary CR et al [9] stated retraction in 22 % cases.In our study a low stoma complication rate would be attributed largely due to classical surgical skills like proper pre-op siting of stoma, proper fixing of the ileostomy at sheath and skin, spigot configuration and proper stoma-care education to nursing staff and patient's attendant

Fig – 3 Ileostomy retraction

In our study 25 patients have some psychosocial problem 18 patients i.e. 36% had depressive thought and distress and 12 % had insomnia in first 2 weeks, while 30 % (15 cases) were suffering from depressive thought and distress at 1 month and 4 % from insomnia at 1 month. A recent western study[10] stated stated that psychological distress is common in 21-70% cases. An indian study[11] stated psychological distress in 16 to 26 % cases. **Liao & Qin et al** [12] stated that individual with stoma have to cope with sensitive issues such as loss of control over their elimination of faeces, they also may experience changes to body image, sexual function, social isolation, stigma, embarrassment and decreased mood. In our study psychiatric disturbances are also high but low in comparison to western studies. It is largely due to proper emotional support to patient and his attendant by our team of medical and paramedical staff, education of stoma-care and access to stoma-therapist. It was observed that in our Indian set-up, due to financial constraints and lack of awareness people tend to suffer from depression and other psychosocial problems but also they are habitual of hardships and receive better family support, so less likelihood of psychiatric disturbances than their western counterparts.A good social and emotional support by the patient's families and stable social environment may also be responsible for the lower number of affected patients than in western countries

In our study 05 patients suffer from hypoalbuminemia at 2 weeks i.e. 10% but at 1 month 20 patient i.e. 40% and at 2 months 15 patient i.e. 30% were suffering from hypoalbuminemia, but condition shows a bell-shaped curve and again improve at third month with no case featuring hypoalbuminemia



BELL- shaped curve in hypoalbuminemia

Distance of I-C junction from ileostomy and relation with hypoalbuminemia

Total 35 patients, had their ileostomy within 3 feet from ileocaecal junction. Only 8 (22.9%) cases, out of 35 developed hypoalbuminemia whereas, it was seen in 12 patients (80%) out of 15, who had their ileostomies at more than 3 feet from ileocaecal junction. This may be attributed to less absorptive surface area of ileum being available and increased absorption of nutrients towards terminal ileum. Previous similar studies by other researchers have not commented upon nutritional status in relation to distance from ileocaecal junction.

In our study 18 cases present with mild anaemia (Hb<11gm/dl) and only 5 cases (10%) present with moderate anaemia (Hb 8-10 gm/dl) during first 2 weeks in post-op period. **Kennedy H.J. et al** [13] said that 38% cases show mild anaemia, this discrepancy arises as in their study most cases were due to ulcerative colitis and crohn's disease and absorption of vit-B_{12} was hampered but in our setup as emergency surgeries are more, malnourishment is the most likely cause which got improved in 2-3 week post-operatively when the patients started taking a balanced nutritious diet and absorption gradually improved.

Conclusion

This cross sectional study was conducted in Dept. of General surgery, Shri Mahant Indiresh Hospital & Shri Guru Ram Rai Institute of Medical and Health Sciences, Patel nagar, Dehradun from October 2016 to march 2018. Total 50 patients who underwent ileostomy in this institute was studied for morbidity in a patient of ileostomy in a 3 month follow-up period. Findings are shown in the table

Our study shows significant morbidity like electrolyte abnormalities (52%), skin problems (32%), stoma diarrhoea (54%), psychosocial disturbances (50%) in first 2 weeks post-surgery.

It also shows that:

Typhoid and tubercular pathology is the commonest indication for loop ileostomy

There is an increasing trend of performing ileostomy in emergency situations, although being bothersome, ileostomy is still a life-saving procedure.

It is of paramount importance that ileostomies are properly sited, improper siting may increase the incidence of dermatitis, leakage, foul odour and other complications.

Early referral to tertiary hospital, early diagnosis, proper pre-op management like I.V. fluids, antibiotics, early detection and prevention of hypotension, reduction of time consumption for emergency laparotomy, close post-operative monitoring reduces the morbidity in a patient of ileostomy.

Despite of ileostomy, proper care of peristomal skin, nutritional status, taking food with high residue and proteins, electrolyte and fluid requirements of patients can be managed and can lead to near normal life style of patient.

Whenever possible ileostomy should not be located too proximal to the terminal ileum, to avoid high output, electrolyte abnormalities and malnutrition.

A proper siting of the stoma, better pre and post-operative care and patient education about diet and stomal care can significantly reduce the physiological and psychological effects of ileostomy

Patient should also be given mental and emotional support to keep him mentally healthy.

This information reinforces earlier studies and suggests interventions that will improve care and quality of life for individuals living with an ileostomy.

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Ethical Approval : The study was approved by the institutional ethics committee

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