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ANALYSING THE EFFECTIVENESS OF OCTREOTIDE IN THE CONSERVATIVE MANAGEMENT OF ENTEROCUTANEOUS AND PANCREATIC FISTULA

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ABSTRACT

BACKGROUND: This study is to evaluate the use of Octreotide which is a somatostatin analogue that can reduce gastrointestinal, pancreatic and biliary secretions as well as decrease gastrointestinal motility, in the conservative management of enterocutaneous and pancreatic fistulas

AIM and OBJECTIVES: The aim of this study is to analyze the effectiveness of Octreotide in adjunct with total parenteral nutrition in the management of enterocutaneous and pancreatic fistulas.

METHODS: Medical records of 20 patients with postoperative enterocutaneous and pancreatic fistulas treated in our Department of General Surgery during the period from May 2018 to May 2020 were taken into consideration. Out of which 12 patients had duodenal fistulas, 5 patients had jejunal or ileal fistulas and 3 patients had pancreatic fistula. Based on daily output, among the intestinal fistulas 10 were low output fistulas (<500ml/24hrs) and 7 were high output fistulas(> 500ml/24hrs). Among the pancreatic fistulas, there were 2 low output fistulas and 1 high output fistula (>200ml/24hrs). Octreotide was administered (100mcg, 8th hourly, subcutaneously or intravenously) along with nutritional support including total parenteral nutrition in 10 consecutive patients (8 intestinal fistulas and 2 pancreatic fistulas) until spontaneous closure of fistula was seen.

RESULTS: A mean reduction of 60% of fistula output was noted in the patients who received Octreotide in their treatment plan, within 24 hours of administration. Spontaneous closure of fistula was seen in 6 patients from Octreotide group (mean closure time is 14 days, range: 7-30days) and in 5 patients from non-Octreotide group treated only with total parenteral nutrition (mean closure time is 13days), which is not a significant result (p=0.5) Also, the fistula closure rate was not influenced by the anatomic site, output rate or age of the patient.

CONCLUSIONS: This study finally concludes that though Octreotide rapidly reduces the fistula output when given in combination with total parenteral nutrition, thus, decreasing the hospital stay, complication rates and cost of treatment, but it doesn't significantly influence the spontaneous closure rate.

KEYWORDS : Octreotide, enterocutaneous fistula (ECF), pancreatic fistula

INTRODUCTION

Enterocutaneous fistulas (ECF) are abnormal communications between the small bowel or large bowel and the skin.

External pancreatic fistula or pancreaticco-cutaneous fistula is an abnormal communication between the pancreatic duct and the skin, resulting in loss of bicarbonate-rich pancreatic fluid leading to anion gap metabolic acidosis, which may or may not be hyperchloraemic. These patients with ECF are usually malnourished, dehydrated with underlying wound infection and sepsis. In the past times, EC fistulas are associated with long hospital stays, with increased morbidity and mortality rates[1]. Even with advancements in their management in present times, the mortality rate still remains as high as 3-22% mainly due to their associated complications[2].

The enterocutaneous fistulas are classified based on their etiology into spontaneous and post-operative based on their anatomical location and finally based on their amount and composition of the drainage from the fistula.

Spontaneous closure of these fistulas without the need for surgical intervention is the desirable result for these patients. The factors that predict the failure of the spontaneous closure of these fistulas includes distal obstruction, local infection, foreign body, open abdomen, epithelialized tract , multiple fistula defects, short tract, jejunal origin, high-output, profound malnutrition,etc[3].

The strategy for management of ECF and pancreatic fistula includes nutritional support, electrolyte imbalances correction, recognition and treatment of sepsis, localization and delineation of the anatomy of fistula, and timely operative management when required[4].

Octreotide is a somatostatin analogue that can reduce gastrointestinal, pancreatic and biliary secretions as well as decrease the gastrointestinal motility, being used in the conservative management of enterocutaneous and pancreatic fistulas[5].

Spontaneous closure rates are small leading to need for surgery and other newer modalities like wound vacuum assisted closure, fibrin glue and the use of somatostatin analogues have been used to promote the closure of ECF.

Figure 1: Post-operative ileal fistula

AIMS AND OBJECTIVES: The aim of this study is to analyse the effectiveness of Octreotide in adjunct with total parenteral nutrition in the conservative management of enterocutaneous and pancreatic fistulas.

MATERIALS AN METHODS: This is a prospective study where medical records of 20 patients with postoperative enterocutaneous and pancreatic fistulas treated in our Department between May 2018 to May 2020 were taken into consideration.

Out of the 20 patients, 12 patients had duodenal fistulas, 5 patients had jejunal or ileal fistulas and 3 patients had pancreatic fistulas.

Based on daily output, among the intestinal fistulas 10 were low output fistulas (<500ml/24hours) and 7 were high output fistulas (>500ml/24hours).

Among the pancreatic fistulas, 2 were low output fistulas (<200ml/24hrs) and 1 was high output fistulas (>200ml/24hrs). Octreotide was administered (100mcg,8th hourly , subcutaneously or intravenously) along with nutritional support including total parenteral nutrition in 10

consecutive patients (8 intestinal fistulas and 2 pancreatic fistulas) until spontaneous closure of fistula was seen.

INCLUSION CRITERIA: Patients with ECF and pancreatic fistula who are above the age of 18years who were treated conservatively were identified and included in this study.

Each chart was reviewed for the following information: (1) origin of the fistula;(2) volume of the fistula output; (3) etiology of the ECF; (4) length of the hospital stay; (5) type of therapy (only TPN use or use of Octreotide along with TPN); (6) use of total parenteral nutrition; (7) use of somatostatin analogues; (8) use of antibiotics; (9) wound care

EXCLUSION CRITERIA:
Patient's age less than 18 years and who are treated surgically for fistula management were not included in the study.

RESULTS:
In this study, 20 patients were considered and patient's clinical and demographic characteristics were compared and they were divided into two groups.

Group A: includes patients receiving only total parenteral nutrition along with standard treatment
Group B: includes patients receiving Octreotide as an adjunct to total parenteral nutrition along with standard treatment.

Thus, 9 patients were included in Group A out of which 7 are male and 2 are female patients and 11 patients were included in Group B out of which 9 are male and 2 are female patients.

The patients were between the age group of 35-65years with mean age in group A being 53.7years and mean age in group B being 52 years.

In group A, 2 patients had spontaneous /traumatic fistulas and 7 patients had post-operative fistulas and group B 10 patients had post-operative fistula and 1 patient had spontaneous/traumatic.

Table 1: Distribution based on fistula origin

CHARACTERISTICS	GROUP A	GROUP B
MEAN AGE (IN YEARS)	53.7	52
STOMACH	1	1
DUODENUM	4	5
JEJUNAL/ILEAL	1	2
COLON	2	1
PANCREAS	1	2

Table 2: Distribution based on fistula output

CHARACTERISTICS	GROUP A	GROUP B
EC FISTULA – HIGH OUTPUT(7)	3	4
EC FISTULA- LOW OUTPUT(10)	5	5
PANCREATIC FISTULA-HIGH OUTPUT(1)	0	1
PANCREATIC FISTULA-LOW OUTPUT(2)	1	1

Among the 20 patients, 11 random patients were selected and administered with Octreotide subcutaneously or intravenously at the rate of 100mcg, 8th hourly.

A mean reduction rate of 60% in fistula output was noted in the patients who received Octreotide in their treatment plan, within 48hours of administration.

Spontaneous closure of fistula was seen in 6 patients from group B (54.5%) (Mean closure time is 13days; range is 7-30 days) and in 4patients from group A (44.44%) (Mean closure time is 15days; range is 10-40days).

Although there was early spontaneous reduction in the fistula output in group B, the mean spontaneous closure time remained the same in both groups.

Spontaneous closure of fistula in group B when compared to group A is not significant as p value is >0.05 ,meaning use of Octreotide as an adjunct to total parenteral nutrition doesn't influence the spontaneous closure rates of fistulas.

Also, the fistula closure rate was not influenced by the anatomic site, output rate or age of the patient.

DISCUSSION:
ECF is a difficult entity to manage and requires multidisciplinary approach for its management. The spontaneous closure rates ranges from 17-45% based on various factors like the etiological factors, free distal flow, low output, size of the enteral defect, epithelization of the tract, and other associated co-morbidities[6,7].

In recent practice, management of enterocutaneous fistula is done in phased manner -5 phases like stabilization of patients, investigations, decision making, definitive management (prompt surgical management) and post-surgical care[8].

Newer modalities like VAC and fibrin glue along with total parenteral nutrition and somatostatin analogues have been adopted to obtain spontaneous closure rates.

In this study, 20 patients were taken and divided into two groups randomly based on the addition of Octreotide, a somatostatin analogue in their treatment plan. Out of the 20 patients, 17 patients (85%) had post-operative ECF and 16 patients were male patients (80%). Most of the fistulas are post-surgical in origin[6]

"Bowel rest" and TPN by decreasing the enteric secretions and thereby fistula output have been suggested to aid spontaneous fistula closure[9].

All the patients were tried to manage conservatively but only 10 patients had spontaneous closure (50%) with conservative management, 8patients were operated (40%) and 2 patients died.

Among them 8 patients (40%) had high output fistulas and remaining had low output fistulas.

Octreotide was given to 11 patients randomly out of the 20 patients and its efficacy was tested, among them 6 patients had spontaneous closure rates (54.4%) with mean closure time being 13 days and in group A not on Octreotide had a spontaneous closure rate of 44.44% (4 patients)with mean closure time being 15 days .

Although Octreotide reduced the overall hospital stay ,it did not change the mean spontaneous closure time. This study finally concludes that Octreotide rapidly reduces the fistula output when given in combination with total parenteral nutrition, thus decreasing the hospital stay, complication rates and cost of treatment.

Thus, Octreotide doesn't significantly influence the spontaneous fistula closure rates.

In the study conducted by Alivizatos V end et al. showed that an adjunct treatment to total parenteral nutrition, Octreotide reduces rapidly the fistula output without significant influence in the spontaneous closure rate[10].

In a study conducted by Martineau P and et al. , Octreotide as an adjuvant to standard fistula management diminishes fistula output, but its shortening of the time to fistula closure remains to be proven by well-designed comparative trials[11].

CONCLUSION:
Octreotide as an adjunct to regular management of enterocutaneous fistula rapidly reduces the fistula output, decreasing the mortality of the patient and can effectively prevent postoperative complications and fistula formation in patients undergoing elective pancreatic surgeries, but its role in decreasing the time period for spontaneous closure of enterocutaneous fistula is not significant.

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