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ENTEROCUTANEOUS HIGH OUTPUT FISTULAE;
OCTREOTIDE AN EFFECTIVE TOOL IN MANAGEMENT

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ABSTRACT... Enterocutaneous fistula is an abnormal communication between epithelial lined lumen of GI tract & epithelium of an adjacent viscous or skin. **Objectives**: To find out role of octreotide in the management of high enterocutaneous fistula. **Design:** Case study. **Setting:** Department of Surgery Unit-II Punjab Medical College & A & E Department of Jinnah Hospital /AIMC Lahore. **Period**: From Jan 2007 to Dec 2008. **Patients & Methods**: 479 laparotomies were carried out due to trauma. Out of these 21 i.e. 4.38% developed high out put enterocutaneous fistula. All patients were put on similar conservative management including, TPN, antibiotics, fluid electrolyte replacement and stoma care. **Results:** Patients were split into two groups alternatively. There were no statistical difference between the study groups with regard to the age (p-value=0.515). Group I contains 11 patients (octreotide) received additionally 100mg octreotide S/C 8 hourly, showed decrease of volume from 680 to 150ml within 10 days. Spontaneous closure was observed in 8(72.72%) patient & surgery was required in 2(18.18%) patients. Death was 1(9.09%). In Group II remaining 10 patients(without octreotide), fistula discharge volume decreased form 650mg to 150ml in 20 days. Spontaneous closure was noted in 5(50%) cases. Surgery was required in 3(30%), while death rate was 2(20%).**Conclusions:** It is concluded that Octreotide, an analogue of somatostatin with longer half life is effective in treatment of high output fistula.

Key words: Enterocatuneous fistula, high output, octreotide.

INTRODUCTION

Primary GI Fistula arises as a consequence of disease e.g Chron's or malignancy. Secondary GI fistula arises as result of Injury to otherwise normal gut e. g trauma, surgery. If discharge is more than 500ml / day it is classified as high output fistula and usually upper Gastrointestinal and pancreas are involved. However less than 500ml / day is termed as low output fistula and usually colon involved[1,2,3].

Before 1970 mortality of GI fistula was as high as 48% (30%-80%). Better understanding of facts i.e mechanics of GI tract, secretion & absorption, influence of hormones & enzymes, fluid & electrolyte balance, TPN and control of sepsis has improved morbidity & mortality of GI fistula remarkably i.e. up to 10% & even low. Here mainstays are TPN & fluid electrolyte balance[4,5,6,7].

An important break through has been effect of somatostatin. This hormone has half life of 1-2 minutes.
It has inhibitory effect on CNS, decreases splanchnic blood flow and hepatic blood flow. It also inhibits GI excessive secretions like gastric acid amylase, lipase trypsin & secretion. It also inhibits GI endocrine secretions like gastrin, glucagone, insulin, CCK & VIP[8,9] However it stimulates absorption of water & electrolytes. Therefore somatostatin turned to be third pillar for management of GI fistula. But its half life of 1-2 minutes has limited its use. Meanwhile octreotide and analogue of somastostatin has proved very effective because of half life of 113 minutes. Various studies have been carried out & its effects in decreasing GI fistula discharge & spontaneous closure are now obvious[10,11,12].

MATERIAL & METHOD

Daily about 1100 patients are seen in triage of A& E department Jinnah Hospital / AIMC Lahore. Out of these 230 cases are admitted in surgical emergency ward which include trauma, abdominal emergencies, orthopedics & Neurosurgical patient. 210 are admitted in medical emergency ward which include, asthma, HTN, Gastroenteritis, GI bleed, Pancreatitis & cardiac patients. In 24 hours on average 26 surgical procedures are performed Table-I.

Table-I. Daily work load in A & E Department Jinnah Hospital, Lahore	
Total Patients	1100/day
Patients treated & discharged	681/day
Total admission	79/day
Surgical Procedure	26/day
Patients treated in minor OT	85/day

From Jan 2007 to Dec 2008, over a period of 2years 479 laparotomies were carried out due to trauma. These involved intestinal & other organ damage & there was either intestinal handling or anastomosis/repair. After 24hours, the patients were shifted to their respective surgical units on call. Patients were followed there. If patient developed high output fistula, they were followed further. Patients were split in two groups on alternate basis randomly. Standard conservative treatment was same, however Group I (octreotide) received octreotide 100mg s/c 8 hourly for 10 days. Demographics data & progress was recorded on a Performa & results were drawn.

Inclusion criteria

All patients with trauma who underwent laparotomy & developed high output fistula (<500ml)

Exclusion criteria.

Secretions less than<400ml, primary intestinal pathology or disease are excluded. Patients in whom early surgery was advised or left hospital were also excluded.

Drug

Octreotide used was one available free in our hospital pharmacy. However it was made sure that all patients get same brand.

Statistical analyses were conducted using SPSS v 17.0 for descriptive statistics. T-test is used to compare the mean and z-test is used to compare the proportion of Group-I and Group-II. P-value less than or equal to 0.05 consider significant.

RESULTS & OBSERVATION

Out of 479 laparotomies, 21 i.e. 4.38% developed high output fistula. Male to female ratio is 2:1 (Fig-1). Age distribution shown in (Fig-2). Cause of trauma was gun shot 13 (61.90%), Knife 2 (9.52%) and blunt trauma 6 (28.57%) (Fig-3).

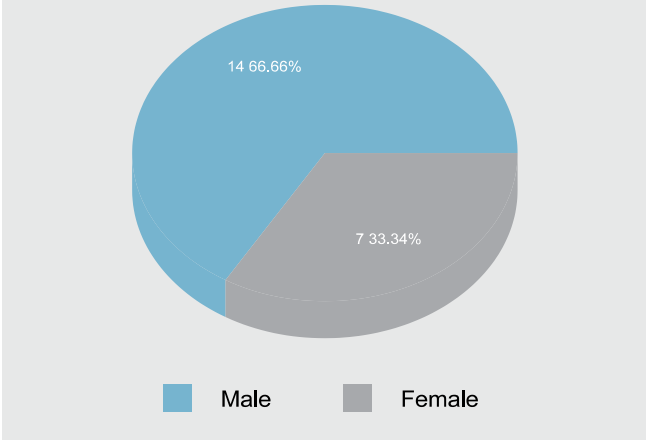
Initially all patients were treated with NG suction, TPN, I/V antibiotics, Fluid & Electrolyte replacement, wound care & stoma care.

Alternatively patients were put on octreotide 100mg S/C 8 hourly for 10 days in addition to standard treatment. 11 patients received octreotide while 10 were managed without it. In both cases, if spontaneous closure was not observed in 40days, conservative management was stopped & surgical intervention carried out.

There were no statistical difference between the study groups with regard to the age (p-value=0.515) (table II).

In Group I (octreotide) average output was 680ml /day (550 ml to 1100ml). This volume decreased to 150ml / day on day 10 (Table III).

Fig-1.



In group II (without octreotide) mean daily output of fistula was 650ml / day (500ml to1100ml) .This volume decreased to 150ml on average on 20th day (Table IV).

Spontaneous closure was in 8 out of 11 i.e. (72.72%). Mean closure time was 23±7.5 days (18-40) days.

Fig-2. Age distribution in 21 patients

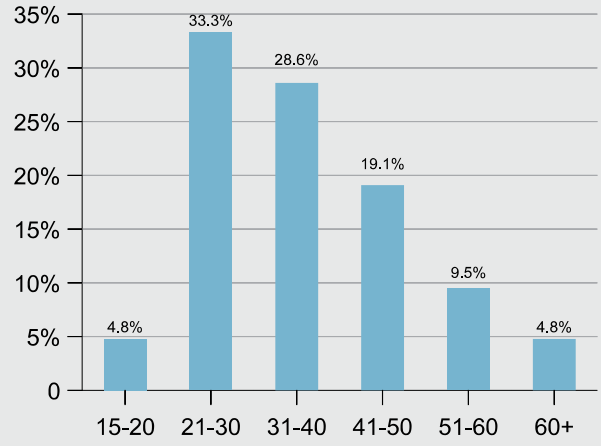


Table-II.

	Group I	Group II	P-value
Age	38 (9.5)	36.5 (8.2)	0.515

Table-III. Group I Octeotide discharge decreased to 150 ml

Days	No. of pts	%age
1 - 5	3	27.27%
5 - 10	7	63.64%

Fig-3. Type of injuries in 21 patients

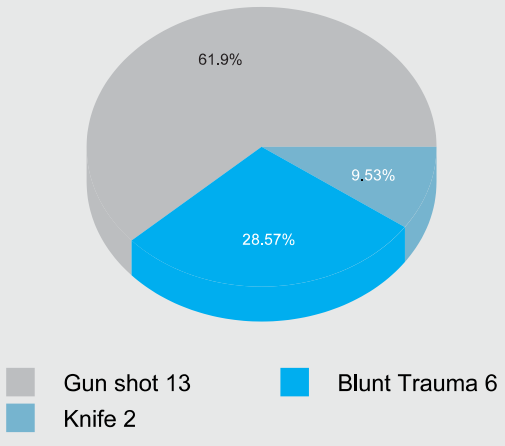


Table-IV. Group II without octreotide discharge decreased to 150 ml

Days	No. of pts	%age
1 - 5	-	-
6 - 10	1	10%
11 - 15	3	30%
16 - 20	1	10%

Surgery was required in 2 i.e 18.18%. Death occurred in 1 i.e. 9.90% due to sepsis.

Spontaneous closure was in 5 out of 10 i.e 50%. Mean closure time was 31±9.8 days (20-40 days). Surgery was required 3 (30%) & death occurred in 2 (20%) due to septicemia (table V).
There is statistical significant difference between group-I and group-II in Spontaneous closure time(p-value=0.001)

Spontaneous closure are more in group-I as compare to group-II but there is no statistically significant difference in both groups (p-value=0.284).

Table-V. Spontaneous closure

Days	Group I	Group II
15-20	1/11 (9.09%)	-
21-25	3/11(27.27%)	1/10 (10%)
26 -30	2/11 (18.18%)	2/10 (20%)
31-35	1/11 (9.09%)	1/10 (10%)
36-40	1/11 (9.09%)	1/10 (10%)

DISCUSSION

Enterocutaneous fistula is one of major complication of abdominal surgery leading to high mortality rate (30-80%). However TPN improved the mortality & combined with fluid electrolyte balance, antibiotics & stoma care, the mortality has been dropped to 10-20%. Use of octreotide has improved mortality a bit further & some studies suggest upto 5% mortality. However morbidity & closure time has been improved by use of obtreotide.[1,13,14].

In our study literature mean age is 35 to 47years in various studies, according to type of primary & secondary causes. Also age group involved is different in different cultures & setups. In our setup frustration & instability is also one cause, therefore in our setup gun shot 61.90% is high factor & relatively younger population is involved. Male to female ratio is almost same as with our study & literature[10,11,15].

Spontaneous closure is 72.72% in our study[13,14,15] In literature it is 65% -84% in different studies. Few studies has shown even no improvement[16]. The reason may be the different dose & type & quality of drug. The patients, their health & other co-morbids also influence the outcome[12,14].

The surgery was carried out in 18.18% of octreotide group, it also varies in literature form 5% to 25%. Again the primary insult is determinant for choice of surgery over conservation[5,17].

Death rate in our study is 9.09% in octreotide group & 20% otherwise which is almost as with the literature. Main cause of death is septicemia & multi organ failure[5,7,17].

Therefore we conclude that use of octreotide is an effective tool in management of high output enterocutaneous fistula. It decreases volume, spontaneous closure time & hospital stay .Overall morbidity is decreased significantly.

SUMMARY

Trauma is prevailing in our society. 4.38% of laparotomies suffer high output fistula. Conservative management is effective in this regard. TPN, Fluide & Electrolytes replacement, antibiotics, stoma care & wound care are main stay of management. Octreotide 100mg s/c 8 hourly for 10 days significantly improves spontaneous closure, decreases volume of discharge , reduces hospital stay and also reduces mortality. Therefore octreotide is recommended in better interest of patients.

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