INTERNATIONAL JOURNAL OF ADVANCE RESEARCH AND DEVELOPMENT

(Volume2, Issue4)

Available online at www.ijarnd.com

Study of Parenteral Antibiotics Used In Post-Operative Perforation Duodenal Ulcer in Department Of Surgery

Junior Sundresh .N[1], Dr. S. Narendran [2], K. Suresh[3], H. Sudheer Kumar[4]

Department of Surgery, Rajah Muthiah Medical College & Hospital, Annamalai University, Department of Pharmacy Practice, Annamalai University, Chidambaram, Tamil Nadu, India

[2]Emeritus Professor in Surgery, Dr. M. G.R University.

sureshkanagu6@gmail.com

ABSTRACT

A perforation duodenal ulcer occurs when an area of erosion eats right through the gut wall in the part of the digestive system leading from the stomach, knows as the duodenum .the life-threatening condition known as peritonitis may follow, where inflammation and infection spread rapidly into the abdominal cavity affecting the entire major organ. Ulcer usually has a history of indigestion perhaps involving reflux, where stomach acid passes up into the throat .with a perforated duodenal ulcer there may be a sudden pain in the center of the chest just below the breast bone, become a more generalised abdominal pain and emergency surgery is generally required to repair the gut.

Objective

Study of parental antibiotics used in post-operative perforation duodenal ulcer in surgery department

Material Method

Prospective observation study, all the patients admitted in gynecology ward in RMMCH during in 4 month study period from October 2016 to January 2017 who has compliance with inclusion and exclusion criteria.

Results

The total number of 40 patients. The male (85%) patients are mostly affected when compared to female patients (15%) with duodenal ulcer. Among the study population, more patients with duodenal perforation were the under age group of 51-61 years. Followed by an elderly patient with age group above sixty. The majority of the parenteral antibiotics mostly prescribed in metronidazole >amikacin >cefotaxim > ciprofloxacin > gentamycin > cefixime.

Keywords: Surgery, Parenteral Antibiotics, Pharmaco-Therapy.

INTRODUCTION

A perforation duodenal ulcer occurs when an area of erosion eats right through the gut wall in the part of the digestive system leading from the stomach, knows as the duodenum .the life-threatening condition known as peritonitis may follow, where inflammation and infection spread rapidly into the abdominal cavity affecting the entire major organ. Ulcer usually has a history of indigestion perhaps involving reflux, where stomach acid passes up into the throat .with a perforated duodenal ulcer there may be a sudden pain in the center of the chest just below the breast bone, become a more generalised abdominal pain and emergency surgery is generally required to repair the gut.

Perforated ulcer are mostly seen in older people and often associated with an infection by bacteria called H. Pylori or helicobacter pylori. An ulcer may also be caused by taking medication that irritates the gut lining such as aspirin, the lining of the duodenum is called mucosa is normally protected from acid damage by secretion of mucus and bi- carbonate. Aspirin and similar NSAIDs inhibit the body production of prostaglandin H. pylori infection not only inflamed the duodenal lining but also increase production of gastric acid by the stomach.

Risk factors

Smoking

Smoking seems to be a major risk factor for duodenal ulcer perforation. Bidi smoking is a common habit in our area. Where both male and female patients. It's showed that smokers had a threefold higher mortality than non-smokers.

Use of non-steroidal anti-inflammatory drugs

Another important risk factor in the use of NSAIDs. Five to eight times increased risk has been reported for NSAIDs (aspirin).

Alcohol consumption

. Alcohol consumption is associated with increased risk of duodenal ulcer, especially in male patients. Alcohol is a noxious agent causing gastric mucosal damage, stimulates acid secretion and increases serum gastric level.

AIM

To study the use of parenteral antibiotics in post-operative perforation duodenal ulcer in the surgery department.

OBJECTIVE

- To observe the use and duration of parenteral antibiotics.
- To evaluate the type of surgery performed.
- To observe the mean length of hospital stay**.**

METHODS

Study design

Prospective observational study.

Study site:

The study was conducted in the Department of Surgery, Rajah Muthiah Medical College. Annamalai University. A 1260 bedded multi specialty tertiary care teaching hospital. Study design this research is a prospective observational study. Study period and duration. This study is conducted for 4 months period from October 2016 to January 2017.

Selection procedure

The patients admitted to the surgery wards and post-operative surgical care unit with the problem of duodenal ulcer.

Inclusion criteria

- Newly diagnosed cases of peptic ulcer disease perforation of stomach and duodenum
- Patient with age above 18, including both the gender.

Exclusion criteria

- Patient who are admitted to intensive care unit
- Early discharge and treatment discontinuation.

Study population:

All diagnosed cases of duodenal ulcer perforation patients admitted in surgery ward.

Data collection

- Patient's case record was evaluated to collect following data.
- Personal information: Name, age, sex, address, education and occupation, socioeconomic status,
- Stress, alcohol, smoking and tobacco intake in any form.
- Past history of peptic ulcer disease, use of Non-steroidal anti-inflammatory drugs for heart disease or osteoarthritis.

Tests

- Detail clinical history
- Patient's prescription
- Rapid urease test
- Upper GI endoscopy

RESULT

The result was obtained from 40 patients with duodenal ulcer in surgery ward, who were enrolled in this study after fulfillment of above criteria and after obtaining other consent.

TABLE 1: GENDER WISE DISTRIBUTION

S.NO	GENDER	NO. OF CASES	PERCENTAGE (%)
1	MALE	34	85
2	FEMALE	06	15
	TOTAL	40	100

Above table represents the gender wise distribution among the sample the total number of male and female patients enrolled in the study were 34 & 06 respectively. The male (85%) patients are mostly affected to compare in the female patients (15%).

TABLE 2: AGE WISE DISTRIBUTION

S.NO	DISTRIBUTION	MALE	FEMALE	PERCENTAGE (%)
1	18-30	08	NIL	20
2	31-40	04	02	15
3	41-50	04	NIL	10
4	51-60	10	02	30
5	ABOVE 60	08	02	25
	TOTAL	34	6	100

Among the study population, the majority of patients with' duodenal perforation were the under the age group of 51- 61 years. Followed by an elderly patient with age group above sixty.

TABLE 3: LIFESTYLE (SOCIAL HABITS)

S.NO	HABITS	MALE	FEMALE	PERCENTAGE
1	SMOKING	11	NIL	27.5
2	SMOKING/ALCOHOL	05	NIL	12.5
3	SMOKING/ALCOHOL/TOBACCO	06	NIL	15
4	ALCOHOL	03	NIL	7.5
5	ALCOHOL/TOBACCO	04	NIL	10
6	TOBACCO	02	04	15
7	STRESS	03	02	12.5
	TOTAL	34	06	100

Smoking alone is the major risk factor for duodenal ulcer perforation (27.5%), and secondly, the ulcer-causing factor was together with the use of both agents such as alcohol/tobacco/ smoking and alone tobacco which is 15%.Both smoking/alcohol and stress/lifestyle were off 12.5% come to another villain in causing duodenal perforation. Then the hierarchy goes down to alcohol/tobacco and alcohol was 10% and 7.5% respectively.

TABLE 4: CAUSES OF DUODENAL ULCER

S.NO	CAUSES	NO OF PATIENTS	PERCENTAGE (%)
1	H.PYLORY	23	57.5
2	NSAID/ASPIRIN/OTHER	05	12.5
3	EXCESS ACID	03	07.5
4	STRESS/FOOD/SOCIAL HABITs	09	22.5
	TOTAL	40	100

Among 40 patients the 23 patients were found with H.pyloric infection (57.5%) was the most. Another problem like stress, food, and life social habits (22.5%) was second. Followed by important risk factor in the use of NSAIDs

was (12.5%). increased risk has been reported from NSAIDs (aspirin).and another cause in the excess acid HCl (Zollinger- Ellison syndrome) (7.5%) secretion in the stomach.

TABLE 5: H.PYLORI DETECTION

	NO OF CASES IN POSITIVE	NO OF CASES IN NEGATIVE	TOTAL
CASES(n=40)	34	06	40
PERSENTAGE (%)	85	15	100

It shows that *H. Pylori* was the most found microorganism found in patients (85%) with duodenal perforation. Hence triple drug therapy was effective in preventing duodenal ulcer recurrence. The triple drugs therapy was (metronidazole + amoxicillin + pantoprazole).

HOW TO DETECT H.PYLORI

- Perforation site biopsy is taken as a specimen.
- Introduce the biopsy in exposed yellow media and add a one drop of sterile water then after covering the sticker as before.
- The color was changed in **yellow - pink** it's called positive *H. pylori*.
- Endoscopy is identified recurrence of the Ulcer

TABLE 6: SURGERY PERFORMED

S.NO	OPERATIVE PROCEDURE	NO OF PATIENTS	PERCENTAGE (%)
1	LAPAROTOMY	24	**60**
2	VAGOTOMY	12	30
3	PYLOROPLASTY	4	10
	TOTAL	40	100

Among 40 patients, 24 patients have undergone surgical procedure LAPAROTOMY and 12 patients with VAGOTOMY and followed by 4 patients with PYLOROPLASTY.

TABLE 7: PARENTRAL ANTBIOTIC PRESCRIBING PATTERN

S.NO	PARENTRAL ANTIBIOTICS	NO OF PATIENTS	PERCENTAGE (%)
1	**METRONIDAZOLE**	**34**	**85**
2	**CIPROFLOXACIN**	**21**	**52.5**
3	**CEFOTAXIM**	**26**	**65**
4	**AMIKACIN**	**31**	**77.5**
5	**CEFIXIME**	**4**	**10**
6	**GENTAMYCIN**	**9**	**22.5**
7	**AMOXICILLIN**	**29**	**72.5**

Its shows the parenteral antibiotics mostly prescribed is metronidazole and amikacin. Then the hierarchy lows down as amoxicillin < cefotaxime < ciprofloxacin < gentamycin < cefixime.

TABLE 8: DURATION OF PARENTRAL ANTIBIOTIC

S.NO	PARENTRAL ANTIBIOTIC	DURATION
1	**METRONIDAZOLE**	**10**
2	**CIPROFLOXACIN**	**7**
3	**CEFOTAXIM**	**7**

4	**AMIKACIN**	**7**
5	**CEFIXIME**	**10**
6	**GENTAMYCIN**	**10**
7	**AMOXYCILLIN**	**7**

In our study, parenteral antibiotics were continued for 7 days and after that oral antibiotic was given for 5 days. Usually amikacin, metronidazole were given for 5-7 days.

TABLE 9: DURATION OF HOSPITAL STAY IN DAYS

S.NO	OPERATIVE PROCEDURE	NO OF PATIENTS	MEAN LENGTH OF HOSPITAL STAY
1	**LAPAROTOMY**	**24**	**15 DAYS**
2	**VAGOTOMY**	**12**	**15 DAYS**
3	**PYLOROPLASTY**	**04**	**12 DAYS**

The mean length of stay in hospital was 12-15 days.

DISCUSSION

The study describes the parenteral antibiotics used in duodenal ulcer patient's gender wise distribution of the sample. The total number of patients 40 out of that male (85%) patients are mostly affected to compare in the female patients (15%). Among the study population, more patients with duodenal perforation were the under the age group of 51- 61 years. Followed by an elderly patient with age group above sixty. The majority of parenteral antibiotics mostly prescribed in metronidazole >amikacin > cefotaxime > ciprofloxacin > gentamycin > cefixime.

Smoking is the major risk factor for duodenal ulcer perforation. Beedi smoking is a common habit. Alcohol consumption is associated with increased risk of duodenal ulcer, especially in male patients. Alcohol is a noxious agent causing gastric mucosal damage, stimulates acid secretion and increases the gastric level. Pain in abdomen and distension of abdomen are a most common presenting feature, the important followed by the operation is laparotomy with the simple closure of perforation.

Among 40 patients the 23 patients were found in H.pyloric in (57.5%) the most of the patients of duodenal perforation. Another important risk factor in the use of NSAIDs is (12.5%). increased risk has been reported for NSAIDs (aspirin).and another causes in the excess acid HCl (7.5%) secretion in the stomach, and another problem is stress and food and lifestyles are (22.5%).

Perforated peptic ulcer is becoming common in older patients and associated with higher incidence of recent consumption of non-steroidal anti-inflammatory drugs. There is a significant association between *H. pylori* infection and concomitant use of NSAID and Steroids. All patients of perforation peritonitis were treated as a surgical emergency. Preoperatively all patients had broad spectrum antibiotic.

Post-operatively, in our study, parenteral antibiotics were continued for 7 days and after that oral antibiotic was given for 5 days. Usually, antibiotics (ampicillin, metronidazole,) antiulcer ants (ranitidine/omeprazole) were given for 5-7 days.

The post-operatively patient received three-drug regimen containing ampicillin, metronidazole, omeprazole, for seven days. The patient is discharged after that and advised tablet ranitidine for 15 days, and to avoid alcohol drinking, smoking. They were kept on follow-up for 12-18 months. It has been observed that ulcer recurrence rate is very low.

Following mentioned study used omeprazole, clarithromycin, amoxicillin as *H. pylori* eradication therapy for 6-12 weeks.

The mean length of hospital stays for 12 days to 15 days.

CONCLUSION

The total number of 40 patients. The male (85%) patients are mostly affected when compared to female patients (15%) with duodenal ulcer. Among the study population, more patients with duodenal perforation were the under age group of 51-61 years. Followed by an elderly patient with age group above sixty. The majority of the parenteral antibiotics mostly prescribed in metronidazole >amikacin >cefotaxim > ciprofloxacin > gentamycin > cefixime. In our study, parenteral antibiotics were continued for 7 days and after that oral antibiotic was given for 5 days. Usually, amikacin, metronidazole, ranitidine/omeprazole were given for 5-7 days.

Above surgery methods in mostly used for LAPAROTOMY. Post-operative medical management by three drug therapy (ampicillin, metronidazole, omeprazole) and the analgesic (tramadol) also prescribed followed by oral ranitidine for 15 days. The mean length of stay in hospital was 12-15 days.

Avoidance of non-steroidal anti-inflammatory drugs, smoking and drinking and lifestyle modification is also an important aspect. Patients are advised routine every six monthly follow-up endoscopy for recurrence.

REFERENCE

1. Niyaz A. 23 years of the discovery of *Helicobacter pylori*: Is the debate over? Ann Clin Microbiol Antimicrob. 2005; 4:17.
2. Dunn BE, Cohen H, Blaser MJ. Helicobacter pylori. Clin Microbiol Rev.1997; 10:720-41.
3. Jhobta RS, Attri AK, Kaushik R. Spectrum of perforation peritonitis in India-Review of 504 consecutive cases. World J Emergency Surg. 2006; 1:26.
4. Dandaput MC. Gastrointestinal perforation: Review of 340 cases. Indian J Surg. 1991; 53(5):189-19.
5. Ng EK, Lam YH, Sung JJ, Yung MY, To KF, Chan AC, et al. Eradication of *Helicobacter pylori* prevents recurrence of ulcer after simple closure of duodenal ulcer perforation: randomized controlled trial. Ann Surg. 2000; 231(2):153-8.
6. Richter JE, Folk GW, Vaezi MF. *Helicobacter pylori* and gastroesophageal reflux disease: the bug may not be all bad. Am J Gastroenterol. 1999; 93:1800-2.
7. El-Nakeeb A, Fikry A, Abd TM, Fouda el, Awady ES, Youssef T, Sherief D, Farid M Effect of *Helicobacter pylori* after simple closure of a perforated duodenal ulcer. J Gastroenterol Hepatol. 2007; 22(3):345-8.
8. Bakey D, Jordan GL. Surgical management acute gastrointestinal perforation: Am J Surg. 1961; 101:317-23.
9. Arveen S, Jagdish S, Kadambari D. Perforated peptic ulcer in South India: an institutional perspective. World J Surg. 2009; 33(8):1600-4.
10. Crisp E. Cases of perforation of the stomach. Lancet. 1843; 1:639.
11. DeBekay, M.: Acute perforated gastroduodenal ulceration. Surgery 8: 852, 1940.
12. Rauws EAJ, Tytgat GNJ. Cure of duodenal ulcer associated with eradication of Helicobacter pylori. Lancet. 1990; 335:1233.
13. Elnagib E, Mcquaid E, Ahmed ME. Perforated peptic ulcer in Khartoum. Khartoum Med J. 2008; 1(2):62-4.
14. Svanes, C, Soreide JA, Skarstein A, Svanes BT, Svanes K, Soreide O. Smoking and ulcer perforation. Gut. 1997; 41:177.
15. Reinbach DH, Cruickshank G, Mccoll KEL. An acute perforated duodenal ulcer is not associated with Helicobacter pylori infection. Gut. 1993; 34:1344.
16. Smedley F, Hickish T, Taube M, Yale C, Leach R, Wastell C. Perforated duodenal ulcer and cigarette smoking. JR Soc Med. 1988; 81:92.
17. Doll R, Peto R, Wheathly K, Gray R, and Sutherland I. Mortality in relation to smoking: 40 years' observations on male British doctors. British Med J. 1994; 309:901.
18. Nuhu A, Madziga AG, Gali BM: Acute perforated duodenal ulcer in Maiduguri. Internet J Surg. 2009; 21:1.
19. Stabile BE, Passaro EP. Duodenal ulcer: a disease in evolution. Curr Probl Surg. 1984; 21:1-79.
20.Henry D, Dobson A, Turner C. Variability in the risk of major gastrointestinal complications from non-steroidal anti-inflammatory drugs. Gastroenterology. 1993; 105:1078.