International Surgery Journal
Lal SJ et al. Int Surg J. 2016 May;3(2):876-878
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20160670

Research Article

Risk factors and seasonal trends of duodenal ulcer perforation

Shankar Lal J.*, Shrikant Channadasar

Department of General Surgery, KIMS, Koppal, Karnataka, India

Received: 29 February 2016
Accepted: 05 March 2016

***Correspondence:**
Dr. Shankar Lal J.,
E-mail: shanks.lal@gmail.com

ABSTRACT

Background: Strong association has been observed between the use of non-steroidal anti-inflammatory agents (NSAIDs) and perforation of duodenal ulcers. The use of these drugs appears to be the major precipitating factor in currently treated patients. A second risk factor for perforation is immune-suppression, particularly among transplant patients treated with steroids. Other factors include increasing patient age, chronic obstructive lung disease, major burns, and multiple organ system failure.
Methods: The study was conducted in the Department of surgery, Basaveshwara teaching and general hospital, Gulbarga, Karnataka, India during the period of November 2011 - September 2013. The diagnosis of duodenal ulcer perforation was that established by the admitting surgeon, based on clinical features and supposed by radiological evidence and confined at operation.
Results: It was found that 25% of patients were both smokers and alcoholics. In the present study 26.67% of patients had history of NSAID intake.
Conclusions: Duodenal perforation cases were high during winter season.

Keywords: Duodenal ulcer perforation, Risk factors, NSAIDS

INTRODUCTION

Bleeding, perforations and obstruction are the most common complications of peptic ulcer disease. Perforation is said to occur once the pathology extends through the full thickness of the protective mucous layer and contaminates the peritoneal cavity with intra-luminal contents. This gastro-intestinal spillage into peritoneal space leads to peritonitis, fluid and electrolyte imbalance, circulatory insufficiency, septicemia and finally death. Perforation remains the major life threatening complication.[1]

Strong association has been observed between the use of non-steroidal anti-inflammatory agents (NSAIDs) and perforation of duodenal ulcers. The use of these drugs appears to be the major precipitating factor in currently treated patients. A second risk factor for perforation is immune-suppression, particularly among transplant patients treated with steroids. Other factors include increasing patient age, chronic obstructive lung disease, major burns, and multiple organ system failure.

Non-steroidal anti-inflammatory drugs (NSAIDs) are used in the treatment of arthritis and other musculoskeletal disorders, and as analgesics in a wide variety of clinical scenarios. The use of NSAIDs is limited due to their association with mucosal injury to the upper gastrointestinal tract, including the development of peptic ulcer disease and its complications, most notably upper gastrointestinal hemorrhage, and perforation.[2-4]

Hypercalcemia has a direct bearing on the gastric acid hypersecretory state found in patients with Zollinger-Ellison syndrome. Intravenous calcium infusion in normal volunteers induces gastric acid hypersecretion. Additionally, calcium has been demonstrated in vivo and in vitro to stimulate gastrin release directly from

gastrinomas. Resolution of hypercalcemia (by parathyroidectomy) reduces the basal acid output and serum gastrin concentration in fasting gastrinoma patients, suggesting that resolution of hypercalcemia plays an important role in the therapy of this subgroup of patients.

A number of chronic illnesses have been associated with peptic ulcer disease. For example, peptic ulcerations have been found in up to 30% of patients with chronic pulmonary disease.[5] There is no clear understanding about the underlying mechanism of this association. Other factors that might affect might influence these two association could be respiratory infections, cigarette smoking, and stress.

METHODS

The study was conducted in the Department of surgery, Basaveshwara teaching and general hospital, Gulbarga Karnataka, India during the period of November 2011 – September 2013. The diagnosis of duodenal ulcer perforation was that established by the admitting surgeon, based on clinical features and supposed by radiological evidence and confined at operation.

Surgery was defined as urgent less as 4 hours between admission and surgery, same day (4-24 hours) and delayed at a later time during the same admission. This study comprises of 60 cases of duodenal ulcer perforation admitted in the Department of surgery, Basaveshwar teaching & general hospital. Operative details included the site and nature of operation performed. Mortality was defined as death following surgical procedure.

Post-operative morbidity was defined in terms of duration of hospital stay and associated complications following surgery.

Exclusion criteria

- Cases of accidental duodenal perforation during laparotomy.
- Cases of gastric antral perforation.
- Cases of traumatic duodenal perforation.

RESULTS

Among 60 patients, 40% were smokers and 30% were alcoholics.

It was found that 25% of patients were both smokers and alcoholics. 5% of patients were non-smokers and non-alcoholics.

Table 1: Personal habits of patients with perforated duodenal ulcers.

Habits	No. of cases	Percentage (%)
Smoking	24	40
Alcohol	18	30
Both	15	25
None	3	5
Total	60	100

In the present study, 26.67% of patients had history of NSAID intake.

Table 2: History of NSAIDs intake in patients with perforated duodenal ulcer.

	No. of cases	Percentage (%)
History of NSAIDs intake	16	26.67
No history of NSAIDs intake	44	73.33
Total	60	100

It was found that 37.5% of patients aged more than 60 years were taking NSAID.

Table 3: Age distribution of patients with history of NSAIDs intake.

Age (years)	No. of cases	Percentage (%)
<30	2	12.5
30-39	1	6.25
40-49	3	18.75
50-59	4	25
>60	6	37.5
Total	16	100

Table 4: Seasonal trends.

	No. of cases	Percentage (%)
Nov-Feb	27	45
Mar-Oct	33	55

DISCUSSION

In the present study, all 57 males were either indulged with smoking (40%) or alcohol (30%) or both (25%). The present study clearly reflects an increasing incidence of the duodenal ulcer perforations among alcoholics and smokers.

In the present study, out of 60 cases 36 patients (60%) had previous history of peptic ulceration. In the study conducted by George Stain et al, 75% patients had past history of peptic ulceration.[6]

The analysis of 60 cases of perforation in the current study revealed that the intake of NSAIDs increases the

incidence of the duodenal ulcer perforation. From the present study, NSAIDs intake was associated with 26.67% of patients with duodenal ulcer perforation. Moreover it was observed that the geriatric patients (>60 years) with history of NSAIDs intake were at increased risk of duodenal ulcer perforation. 37.5% of geriatric patients had the history of NSAIDs intake.

In the current study the maximum incidence of perforation was during March to October (55%). But the rate of occurrence of duodenal ulcer perforations was highest during winter (November to February). During the four months of the winter 27 (45%) cases of duodenal ulcer perforation were observed.

Table 5: Comparison of seasonal trend.

Author	Year	Season of perforation
Bloom et al[7]	1974	Winter
Present study	2013	Winter

CONCLUSION

The management of colorectal cancer has progressed over the past few decades because of many advances, including those in genetics, pathology, imaging, medical oncology, radiation oncology, and surgery. Undoubtedly, the management of patients afflicted with colorectal cancer will evolve as advances continue to be made in the multiple disciplines that contribute to the diagnosis and treatment of colorectal cancer.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

REFERENCES

1. Paimela H, Oksala NK, Kivilaakso E. Surgery for peptic ulcer today. A study on the incidence, methods and mortality in surgery for peptic ulcer in Finland between 1987 and 1999. Dig Surg. 2004;21(3):185-91.
2. Matsui H, Shimokawa O, Kaneko T, Nagano Y, Rai K, Hyodo I. The pathophysiology of non-steroidal anti-inflammatory drug (NSAID)-induced mucosal injuries in stomach and small intestine. J Clin Biochem Nutr. 2011;48(2):107-11.
3. Zelickson MS, Bronder CM, Johnson BL, Camunas JA, Smith DE, Rawlinson D, et al. Helicobacter pylori is not the predominant etiology for peptic ulcers requiring operation. Am Surg. 2011;77(8):1054-60.
4. Konturek PC, Konturek SJ, Cześnikiewicz M, Płonka M, Bielański W. Interaction of Helicobacter pylori (Hp) and nonsteroidal anti- inflammatory drugs (NSAID) on gastric mucosa and risk of ulcerations. Med Sci Monit. 2002;8(9):RA197-209.
5. Zasly L, Baum GL, Rumball JM. The incidence of peptic ulceration in chronic obstructive pulmonary emphysema: a statistical study. Dis Chest. 1960; 37:400-5.
6. Primrose JN. The stomach and duodenum. Bailey & Love's short practice of surgery. 24th edition. Hodder Arnold; 2004;1026-46.
7. Bloom BS, Fendrick AM, Ramsey SD . Epidemiological trends in peptic ulcer perforation. Am J Gastro. 1974;2:126-8.

Cite this article as: Lal SJ, Channadasar S. Risk factors and seasonal trends of duodenal ulcer perforation. Int Surg J 2016;3:876-8.