



## RESEARCH ARTICLE

### A PROSPECTIVE STUDY ON INTRAPERITONEAL ANTIBIOTIC LAVAGE FOR TRAUMA PATIENT UNDERGOING LAPAROTOMIES TO REDUCE INCIDENCE OF INFECTION

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#### ABSTRACT

**Background:** Preoperative antibiotics for elective abdominal operations are essential in decreasing surgical site infections such that the timely and appropriate administration of antimicrobials is a quality benchmark measure. However, their role in emergent surgery for intestinal perforation is controversial. In the pre antibiotic era, penetrating abdominal trauma was associated with a mortality rate as high as 65% to 70%.<sup>1</sup>

**Methods:** A prospective study compared using either 500 mg of intraperitoneal metronidazole or a saline control in 30 adult trauma patients requiring diagnostic peritoneal lavage was conducted over a 2 month period. Two groups were made Group A received metronidazole and Group B the saline wash.

**Result:** In this prospective study comprising of 30 adults who underwent laparotomy, patients were randomised and assigned into group A and group B by odd even method. Group A consisted of 15 patients in whom diagnostic peritoneal lavage was performed using 500mg of metronidazole and group B consisted of 15 patients in whom diagnostic peritoneal lavage was performed using saline only. Septicemia evidence by presence of fever and tachycardia was noted in 8 out of the 15 patients of group B and 3 out of the 15 patients in group A comprising 53.3% and 20% of each group respectively. Wound dehiscence was seen in one patient of each group. Overall group A patients who received DPL with metronidazole 500 mg as compared to normal saline as DPL has lesser incidence of postoperative complication, shorter duration of hospital stay and lesser incidence of septic complication.

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## INTRODUCTION

Preoperative antibiotics for elective abdominal operations are essential in decreasing surgical site infections such that the timely and appropriate administration of antimicrobials is a quality benchmark measure. However, their role in emergent surgery for intestinal perforation is controversial. In the pre antibiotic era, penetrating abdominal trauma was associated with a mortality rate as high as 65% to 70%. (Halasz, 1977) Antibiotic therapy in patients with blunt trauma remains an area of investigation. This study was undertaken in trauma patients evaluated with diagnostic peritoneal lavage to determine the effect of an intraperitoneal antibiotic on the following factors: infectious complications, length of hospital stay, and mortality. (Anglen, 1964) Identifying patients with

risk factors associated with the development of intra-abdominal infections makes possible early interventions to minimize morbidity and mortality. (Casten *et al.*, 1964) We sought to determine the incidence of intra-abdominal infection (organ/space surgical site infection) in patients undergoing operation because of abdominal trauma, to identify the risk factors associated with the development of this complication, and to estimate the respective magnitudes of the risk factors (Glotzer *et al.*, 1970).

## MATERIALS AND METHODS

A prospective study compared using either 500 mg of intraperitoneal metronidazole or a saline control in 30 adult trauma patients requiring diagnostic peritoneal lavage was conducted over a 2 month period. Advanced trauma life support indications for performing diagnostic peritoneal lavage

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were used. Patients were to receive 50 mL of solution intraperitoneally and were evaluated for all septic complications, length of hospital stay, and outcome. The entire study was randomized. Two groups were made Group A – received metronidazole and Group B the saline wash.

### Inclusion criteria

- All patients undergoing emergency exploratory laparotomies for blunt trauma to the abdomen
- Age group 18-75 years
- Exclusion criteria
- Co-morbidities like Diabetes, hypertension, HIV positive patients and immuno compromised patients
- Any patient who requires need of colostomy
- Pregnant patients were not included in the study

### RESULTS

In this prospective study comprising of 30 adults who underwent laparotomy, patients were randomized and assigned into group A and group B by odd even method. Group A consisted of 15 patients in whom diagnostic peritoneal lavage was performed using 500mg of metronidazole and group B consisted of 15 patients in whom diagnostic peritoneal lavage was performed using saline only. The Length of hospital stay in group A patients on an average was 4.7 days VS group B where the average length of hospital stay was 6.3 days. The prolongation of hospital stay for group B patients was attributed to wound infection respiratory tract infection and other postoperative complication. Septicemia evidence by presence of fever and tachycardia was noted in 8 out of the 15 patients of group B and 3 out of the 15 patients in group A comprising 53.3% and 20% of each group respectively. Wound dehiscence was seen in one patient of each group. Overall group A patients who received DPL with metronidazole 500 mg as compared to normal saline as DPL has lesser incidence of postoperative complication, shorter duration of hospital stay and lesser incidence of septic complication.

### DISCUSSION

Peritonitis is inflammation of the peritoneal lining of the abdomen usually due to infection. Peritonitis is secondary to contamination of peritoneal cavity by gastrointestinal contents

Due to Perforation of viscus or translocation through wall of the gut due to ischemia. Morbidity of peritonitis is realized when one appreciates that it involves 22,000 sq/cm of the serosa which is equivalent to 70-100% body surface burns. Intraoperative peritoneal lavage first performed by gynecologist, Joseph Price in 1905 using sterile water. After close perforations peritoneum is cleaned through saline lavage and aspiration. Intraoperative peritoneal lavage is a standard procedure in the operative management of peritonitis. Different fluids have been used for lavage like sterile water, warm saline, aqueous povidoneiodine, saline with antibiotics. Addition of antibiotics to the fluid does not have distinct advantage over warm saline lavage. It has been shown by experimental studies that adequate therapeutic levels of antibiotics are attained in the peritoneal fluid with IV injections. Lavage reduces the bacterial load, thereby reducing the incidence of postoperative surgical site infection and sepsis. It has also shown to reduce mortality in experimental study.

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