



ORIGINAL RESEARCH PAPER

Medical Science

CLINICAL STUDY OF ROLE OF PROPHYLACTIC ANTIBIOTIC IN PATIENTS UNDERGOING INGUINAL MESH HERNIOPLASTY

KEY WORDS: Wound infection, polypropylene mesh, Hernioplasty

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ABSTRACT

Background : To assess the importance of antibiotic prophylaxis in term of reducing postoperative complication leads to this study.

Material and Method: Total 60 patients undergone randomized double blind placebo controlled study in thirty month time. These patients were evaluated for the status of suture line as well as the presence of wound infection after inguinal mesh hernioplasty.

Result: Out of 60 patient 33 were randomized to the antibiotic group and 27 to the placebo group. These groups were comparable for all variable studied excluding wound infection which occurred at a rate of 10.4% in the antibiotic group and 18% in the placebo group (P>0.01).

Conclusion: This study did not show any statistically significant difference between the groups who received antibiotics and those who received placebo in terms of any of the prognostic end points evaluated for inguinal mesh hernioplasty.

INTRODUCTION :

The inguinal hernia repair is done by many methods, inguinal mesh hernioplasty is one of method (technique) in which a monofilament polypropylene mesh is anchored with interrupted polypropylene suture to conjoint tendon, pubic tubercle, inguinal ligament and fascia transversalis beyond deep ring [1]. Absorbable suture material having little tissue reaction leg, Vicryl used to repair the external oblique aponeurosis. Skin is closed using 2/0 nylon.

The incidence of infection after inguinal mesh hernioplasty has been reported to vary between 0.4-1.3%. Repair of inguinal hernia with any prosthetic implant can have a detrimental effect on the patient's host defence, thus the risk of infection is increased[5]. Prophylactic use of antibiotic may inhibit the growth of contamination bacteria and their adherence to implants thus decreasing the risk of infection [6].

Although there is little evidence to support the idea of use of antibiotic for this procedure, many surgeon routinely use prophylactic antibiotics [7]. Review of world literature on this topic to determine whether antibiotic prophylaxis in inguinal mesh hernioplasty in department of surgery at Patna Medical College & Hospital, Patna

MATERIAL AND METHODS :

A total 60 patients, all male, age ranging from 18 year to 65 years, undergoing unilateral or bilateral elective inguinal hernia repair using polypropylene mesh in 30 month period were included in this study. Patient with pre-existing local infection strangulated or obstructed inguinal hernia, femoral hernia, patients on steroids or Chemotherapy or having immune deficiency or those who had received antibiotics in past 48 hour and patient with valvular heart disease or prosthetic heart valve or joints were excluded. A randomized double blind placebo controlled study was conducted.

The drug used was either a single dose of amoxicillin + clavulenic acid (1.2 gm) or equal volume of normal saline as placebo by IV bolus 30 minutes before the induction of anaesthesia. Routine preoperative investigations were done for all patients. The operative site was prepared with saving just prior to surgery and painting with Povidine Iodine.

Surgical procedure : It is done after incising skin and herniotomy as described in introduction.

Follow up : All patients were followed up initially daily till discharge, then one week and one month following discharge from the hospital. Wound were evaluated to look for any superficial or deep seated surgical site infection. In the event

of postoperative wound infection, wound swab for culture and sensitivity was done.

RESULT :

Total patient were randomized in two groups. The first group (n = 23) received the antibiotic and second group (n = 27) received the placebo. 73.3% patient in the antibiotic group did not have any significant co-morbidities. 10.5% patients in the antibiotic group did not have any significant co-morbidities. 10.5% patients in the antibiotic group and 3.5% patients in the placebo group were hospitalized for a duration of more than one week.

There was statistically no significant difference with respect to duration of hospital stay found between two groups. Wound infection was categorized into superficial and deep surgical site infection according to standard definition. 10.4% patients in the antibiotic group and 15% patients in the placebo group had wound deep surgical site infection and four superficial surgical infection while all the four surgical site infection in the placebo group were superficial. Surgical treatment of the wound infection was needed in two patients in the antibiotic group and three patient in placebo group. Culture of aspirate from infection site show staphylococcus aureus in one patient in the antibiotic group while cultures in all the other patients in both group were found sterile.

DISCUSSION:

Since the inception of open inguinal hernia mesh hernioplasty in 1975, it is a matter of debate whether antibiotic coverage is needed to minimize infection [9]. While it is well documented that prophylactic antibiotic administration in clean contaminates surgeries (as colorectal resections) reduces the infection complication significantly but same is not true in hernia repair[3]. The low rate of wound infections and the straight forward treatment if wound get infected are the main reason against routine antibiotic coverage during hernia surgery. Wound infection rates in inguinal hernia are frequently underreported for several reasons. Since most hernia are either day care surgeries or discharged in two to three days the actual follow up- may not done completely. When problem regarding the definition diagnosis and follow up of wound infection after surgeries are considered. The actual rate of wound infection is much higher than the 1-2% rate previously accepted[2].

Sanabria et al/in their metaanalysis on the prophylactic use of antibiotic in mesh hernia repair assessed six randomized controlled trials using the Cochrane inclusion criteria and concluded that antibiotic prophylaxis decreased the rate of surgical site infection almost by 50% . On the other hand a

Cochrane review conducted by Sanchez manual and Seco-Gil 2007 [7]. Included 8 RCTs in which 3 series used mesh and the remaining did not. Based on the result in 2907 patients the author concluded that there was no clear evidence suggesting routine use of antibiotic in elective hernia surgery. Yerdel et al. from Ankara Turkey published a prospective randomized double blind, placebo controlled trial assessing the effects of a single dose of Prophylactic ampicillin + salbactam combination on wound infection after mesh hernioplasty. This study documented a statistically significant (10 fold) decrease in the overall wound infection when a single dose of antibiotic was used during Leichtenstein repair.

Taylor et al., who conducted a randomized multicentric double blind prospective trial to compare single dose intravenous amoxiclav with placebo in 619 patients undergoing open groin hernia repair. The rate of infection in both groups was almost 9% and they concluded that antibiotic prophylaxis is of no benefit to patients undergoing open groin hernia repair.

On an average the wound infection rate in both groups was 12.7%. Even though inadequately powered and with a small sample size, the result of our study did not show a clear benefit of antibiotic prophylaxis in patient undergoing mesh hernioplasty. We may need a large sample size to validate our results

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