Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies ***NLM ID:*** *101716117*

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr Index Copernicus value = 85.10

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

Assessment of role of prophylactic antibiotics in open inguinal hernia repair

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ABSTRACT:

Background: Inguinal hernias account for 75% of abdominal wall hernias, with a lifetime risk of 27% in men and 3% in women. Repair of inguinal hernia is one of the most common operations in general surgery. The present study was conducted to assess role of prophylactic antibiotics in open inguinal hernia repair. **Materials & Methods:** 68 patients of inguinal hernia admitted for mesh repair of both genders were included. Group I had cases and group II had controls. Group I cases was given iv injection of 1.2 gm amoxycillin-clavulanate in 20 ml saline at the time of induction and group II was given 20 ml of sterile saline as placebo. **Results:** Group I had 28 males and 40 females and group II had 38 males and 30 females. Age group 11-20 years had 4, 21-30 years had 4, 31-40 years had 6, 41-50 years had 10, 50-60 years had 14 and >60 years had 20 cases. The complications seen were seroma 14 in group I and 16 in group II, erythema 2 in group I and 3 in group II, serous discharge 2 in group I and 4 in group II and stich abscess 1 in group II. The difference was significant ($P< 0.05$). **Conclusion:** Administration of prophylactic antibiotics in patients undergoing inguinal hernia repair does not provide additional benefit.

Key words: inguinal hernia, mesh repair, prophylactic antibiotics

Received: 14 May, 2021 Accepted: 22 June, 2021

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This article may be cited as: Tripathi AC, Singh U. Assessment of role of prophylactic antibiotics in open inguinal hernia repair. J Adv Med Dent Scie Res 2021;9(7):95-98.

INTRODUCTION

Abdominal wall hernias are common, with a prevalence of 1.7% for all ages and 4% for those aged over 45 years. Inguinal hernias account for 75% of abdominal wall hernias, with a lifetime risk of 27% in men and 3% in women.[1] Repair of inguinal hernia is one of the most common operations in general surgery, with rates ranging from 10 per 100 000 of the population in the United Kingdom to 28 per 100 000 in the United States.[2]

Inguinal hernias present with a lump in the groin that goes away with minimal pressure or when the patient is lying down. Most cause mild to moderate discomfort that increases with activity. A third of patients scheduled for surgery have no pain, and severe pain is uncommon (1.5% at rest and 10.2% on movement). Inguinal hernias are at risk of irreducibility or incarceration, which may result in strangulation and obstruction; however, unlike with femoral hernias, strangulation is rare.[3]

Prophylactic administration of antibiotics preoperatively has become a very important aspect of care of surgical patients. Recommendations in literature are clear for their use in contaminated and clean—contaminated cases but picture is not so clear in clean surgical cases.[4] Prophylactic antibiotics are those which are given to the patients before the contamination or infection has occurred and in surgical patients these are given just before or during the surgery. Studies revealed effective prophylaxis require the administration of antimicrobial regimen before the skin is incised.[5] Clinical trials and pharmacokinetic data have shown that prophylactic agents should be given at the time of induction. If duration of operation is prolonged (more than 4 hrs), repeated dose should be administered after 2 half lives of the drug. The goal is to lessen postoperative morbidity, shorten hospitalization, and reduce the overall cost attributable to the infections.[6] The present study was conducted to assess role of prophylactic antibiotics in open inguinal hernia repair.

MATERIALS & METHODS

The present study comprised of 68 patients of inguinal hernia admitted for mesh repair of both genders.

Patients' consent was obtained before starting the study.
Demographic data such as name, age, gender etc. was recorded. Patients were randomized in two groups. Group I had cases and group II had controls. After routine investigations and pre-anaesthetic check-up they were subjected to Lichenstien's method of tension free mesh repair. Skin preparation was same in both the groups using preoperative shaving and 10% povidone iodine as disinfectant. Group I cases was given iv injection of 1.2 gm amoxycillin-clavulanate in 20 ml saline at the time of induction and group II was given 20 ml of sterile saline as placebo. Postoperatively patients were discharged on day one. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Status	Cases	Control
M:F	28:40	38:30

Table I shows that group I had 28 males and 40 females and group II had 38 males and 30 females.

Table II Age distribution of cases

Age group (Years)	Number	P value
11-20	4	0.05
21-30	4	
31-40	6	
41-50	10	
50-60	14	
>60	20	

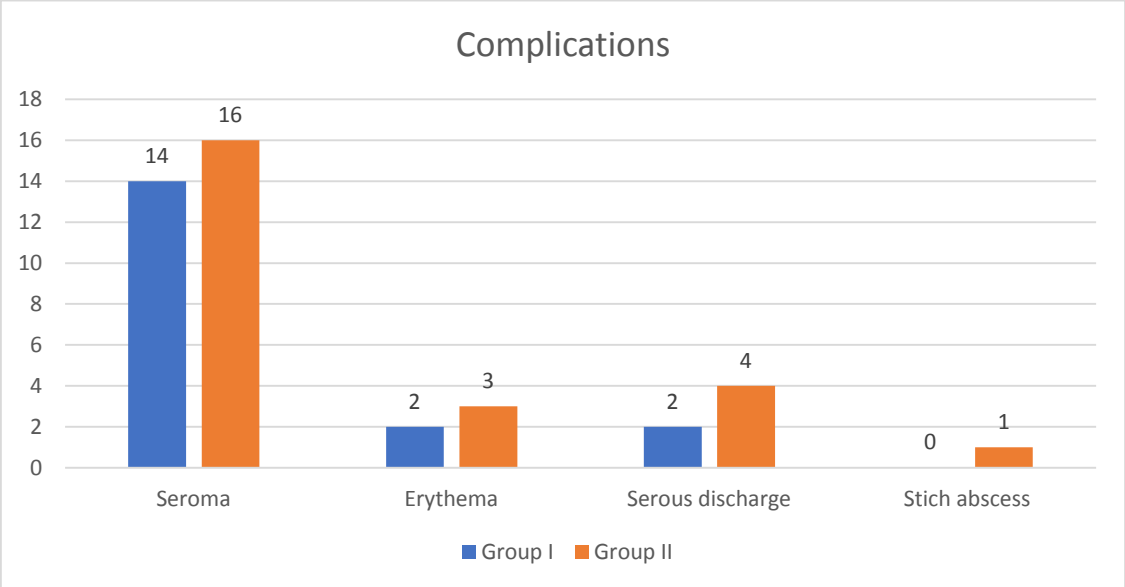
Table II shows that age group 11-20 years had 4, 21-30 years had 4, 31-40 years had 6, 41-50 years had 10, 50-60 years had 14 and >60 years had 20 cases. The difference was significant (P< 0.05).

Table III Comparison of complications

Complications	Group I	Group II	P value
Seroma	14	16	0.91
Erythema	2	3	0.80
Serous discharge	2	4	0.07
Stich abscess	0	1	0.15

Table III, graph I shows that complications seen were seroma 14 in group I and 16 in group II, erythema 2 in group I and 3 in group II, serous discharge 2 in group I and 4 in group II and stich abscess 1 in group II. The difference was significant (P< 0.05).

Graph I Comparison of complications



DISCUSSION

A hernia is reducible if it occurs intermittently (such as on straining or standing) and can be pushed back into the abdominal cavity, and irreducible if it remains permanently outside the abdominal cavity. A reducible hernia is usually a longstanding condition, and diagnosis is made clinically, on the basis of typical symptoms and signs. The condition may be unilateral or bilateral and may recur after treatment (recurrent hernia).[7] Inguinal hernias are often classified as direct or indirect, depending on whether the hernia sac bulges directly through the posterior wall of the inguinal canal (direct hernia) or passes through the internal inguinal ring alongside the spermatic cord, following the coursing of the inguinal canal (indirect hernia).[8] The present study was conducted to assess role of prophylactic antibiotics in open inguinal hernia repair.

In present study, group I had 28 males and 40 females and group II had 38 males and 30 females. Goyal et al[9] studied the role of prophylactic antibiotics in open inguinal hernia repair. A total of 200 patients were included, they were randomised in two groups. Group 1 was given prophylactic dose of inj amoxy-clav while group 2 was given placebo only. Rate of serous discharge and seroma formation was 1% and 22% respectively in group 1 while 2% and 26% in group 2 also the rate of erythema and stitch abscess were 1% and none in group 1 and 2% and 1% in group 2 respectively. On statistical analysis these differences were not significant.

We observed that age group 11-20 years had 4, 21-30 years had 4, 31-40 years had 6, 41-50 years had 10, 50-60 years had 14 and >60 years had 20 cases. Platt et al[10] reported a randomized, double blind, placebo, controlled trial of 1218 patients undergoing hernia repair. Of the patients undergoing hernia repair infection occurred in 2.3% of those given Prophylactic antibiotics. The risk ratio was 0.55 with a 95% confidence interval 0.2–1.38.

We observed that complications seen were seroma 14 in group I and 16 in group II, erythema 2 in group I and 3 in group II, serous discharge 2 in group I and 4 in group II and stich abscess 1 in group II. Celdran et al[11] in a prospective; double blind randomized controlled trial of intravenous antibiotics prophylaxis in inguinal hernia repair showed the difference between two groups to be highly significant (p=0.059) and trial was stopped early for ethical reasons. The author concluded that their results warranted the routine use of antibiotic prophylaxis. Yerdel et al[12] documented a significant decrease in overall wound infection rate 9% to 0.7% when single dose, intravenous amipicillin sulbactam was used during Lichtenstein hernia repair.

Systematic review and meta-analysis of randomised clinical trials have found that, compared with open repair, laparoscopic surgery for hernia is associated with longer operation times but less severe postoperative pain, fewer complications, and a more rapid return to normal activities. Laparoscopic surgery is associated with higher recurrence rates during the learning curve but causes less chronic pain and numbness when assessed by questionnaire up to five years after operation. The National Institute for Health and Clinical Excellence (NICE) recently recommended laparoscopic surgery as a treatment option for inguinal hernia and said that patients should be fully informed of the risks and benefits of open and laparoscopic surgery to enable them to choose between procedures.[13]

Convalescence is of socioeconomic importance in complications. Single centre studies suggest that for most repairs five to eight days should be adequate, although studies are difficult to integrate owing to different definitions of convalescence.[14] Recently Bay-Nielsen and colleagues[15] examined convalescence after Lichtenstein repair in a case-control study using data from the Danish hernia database. The median length of absence from work was seven days (sedentary work 4.5 days, strenuous work 14 days). The study found that a single day of convalescence was feasible without increasing recurrences. Pain was the most common cause of a delay in returning to work (60%), followed by wound problems (20%).

CONCLUSION

Authors found that administration of prophylactic antibiotics in patients undergoing inguinal hernia repair does not provide additional benefit.

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