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RESEARCH ARTICLE
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# EFFICACY OF SINGLE DOSE VERSUS MULTIPLE DOSE ANTIBIOTIC IN ELECTIVE INGUINAL HERNIA SURGERIES

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## INTRODUCTION

A hernia is an abnormal protrusion of the whole or part of a viscus through normal or abnormal opening in the walls of its containing cavity.[1] Inguinal hernias are among the most common problems seen in surgical clinics. Inguinal hernias comprise 75% of all abdominal hernias.The lifetime risk of developing an inguinal hernia is 27% in males.The lifetime risk of developing an inguinal hernia is 3% in females[2]. They can be congenital or acquired, complete or partial, external or internal, reducible or irreducible, direct or
indirect, and primary or recurrent[3]. Patients typically present with a bulge in the groin that is associated with pain in twothirds of cases.[4] Painful hernias are most frequently described as a dull aching, heavy, dragging, or burning sensation. Maneuvers that
increase intra-abdominal pressure, such as straining, lifting, or coughing, may exacerbate pain or hernia size by causing intra-abdominal contents to be pushed through the fascial defect[5].
Some patients may complain of worsening symptoms at the end of the day or after increased activity. Minor symptomatic cases may be temporarily improved by lying down or reducing the hernia manually. Severe or unbearable pain, that is, sudden onset, suggests possible complicated hernia and should be treated as an emergency.

Inguinal hernias are primarily diagnosed by history and physical examination with secondary imaging rarely needed[6]. Traditionally almost all inguinal hernias are referred for surgical treatment following diagnosis. Progression of a hernia by time is natural and most surgeons prefer repairing all inguinal hernias as soon as possible. Inguinal hernia is a benign disease and its repair results in only rare and minor complications in elective setting. Nevertheless complications developed after emergency repairs may be more dramatic and frequent, even mortality may be recorded7,8 .

**Table 1: A classification of current repair techniques for inguinal hernias-[9]**

A. Tension-free prosthetic repairs

1. Anterior repairs
    a. Lichtenstein repair and its modifications
    b. Plug repairs
    c. Patch and plug repairs
    d. Double-layer devices
2. Posterior (preperitoneal) repairs
    a. Open techniques via inguinal incision
    b. Stoppa repair
    c. Laparoscopic/endoscopic repairs
        i. Transabdominal preperitoneal
        ii. Total extraperitoneal

B. Tissue-Suture repairs

1. Bassini-Shouldice technique and its modifications
2. Marcy repair

The open repair with mesh (Lichtenstein tension-free) technique is the current gold standard of care for most patients with an inguinal hernia.[10] The use of prosthetic mesh is recommended because of its association with a 50%-75% lower risk of hernia
recurrence, lower risk of chronic pain post-operatively, and an earlier return to work compared with a sutured repair.[11]

Other surgical repairs like non-mesh open repairs, the Shouldice technique is recommended due to its lower risk of recurrence compared with other pure tissue repairs (e.g., McVay or Bassini techniques).[11] The recurrence rate with the Shouldice techniques is higher than that with the mesh techniques [odds ratio (OR) 3.80, 95% confidence interval (CI) 1.99–7.26] but lower than other pure tissue repairs (OR 0.62, 95% CI 0.45–0.85).[12]

Hernia repair is typically classified as a "clean" procedure, meaning the surgical site has minimal contamination risk[13.]

Despite this classification, surgical site infections (SSIs) remain a potential complication, leading to increased morbidity, healthcare costs, patient discomfort and Mental stress.

Antibiotic prophylaxis, the administration of antibiotics before surgery to prevent infection, plays a crucial role in minimizing SSIs after elective inguinal hernia repair[14].
Different techniques of antibiotic prophylaxis, the dose and nature of drug use, timings of the usage were studied by various cross sectional studies and based on which
standard protocol for antibiotic prophylaxis for each procedure were made[15].
The approach of providing antibiotic prophylaxis as a single dose, given just before the surgical incision is made, has become increasingly popular and widely adopted.
This single-dose prophylactic antibiotic regimen is favored due to its simplicity, as it involves only a one-time administration of the antibiotic. The convenience offered by the single-dose regimen, in contrast to multi-dose or prolonged antibiotic
administration, contributes to its growing popularity and acceptance[16]. In public healthcare facilities grappling with overcrowded conditions and suboptimal hygiene standards, a widespread practice involves administering antibiotics for an extended duration of 7 to 10 days, even for clean and clean-contaminated surgical procedures.
This practice stems from concerns over the potential development of surgical site infections. However, such prolonged multi-dose antibiotic regimens not only impose a substantial financial burden on the hospital but also contribute to the alarming rise of antimicrobial resistance.
Our study aims to evaluate the effectiveness of a single-dose antibiotic prophylaxis regimen, administered 30 minutes prior to hernia surgery, utilizing a standard, carefully selected antibiotic agent. This approach will be compared to the conventional practice of administering the same antibiotic in multiple doses until the patient is discharged from the hospital.
The primary objective is to determine whether a single-dose prophylactic regimen can achieve comparable efficacy to the multi-dose approach, thereby offering the potential to reduce costs while concurrently mitigating the risk of fostering antimicrobial resistance.

## AIMS & OBJECTIVES:

This study aims to compare the efficacy of single dose versus multiple dose antibiotics in elective Inguinal hernia surgery. More precisely,
1. To assess the efficacy of single dose versus multiple dose antibiotics in preventing surgical site infection in elective Inguinal hernia surgery.
2. To assess safety and cost efficacy of using single dose versus multiple dose antibiotics prophylaxis.

## MATERIALS & METHODS:

A. Source of Data :This study was conducted on the patients admitted in the department of general surgery for inguinal hernia at Rajarajeswari Medical College and Hospital
B. Method of Data Collection
Study design: Randomized case-control prospective study Study period: August 2022 to February 2024
Study Centre : Rajarajeswari Medical College and Hospital
SampleSize :60 (30 for single dose and 30 for multiple dose)
Study group/ Group A :Patients undergoing Elective Inguinal hernia repair will be given a single dose of 1.5gm Cefaperazone + sulbactam intravenously half an hour before operation.
Control group /Group B :Patients undergoing Elective Inguinal hernia repair will be given multiple doses of 1.5gm Cefaperazone + sulbactam intravenously for 5 days post operatively.

### Inclusion Criteria:

1. Patients with the age group between 18-60 years of either sex.
2. Those willing to give informed consent (annexure 1) and posted for following surgeries are included in the study.
3. Reducible Inguinal hernia of all types undergoing elective inguinal hernia repair. Exclusion Criteria:
1. Age group less than 18 years and more than 60 years.

2. Patients posted for emergency inguinal surgeries.
3. History of hypersensitivity to cephalosporin group of antibiotics.
4. Patient on steroid medications or those who have immunodeficiency.
5. Patients not willing to give informed consent.

**Methodology:**

After obtaining approval and clearance from the institutional ethics committee, the patients fulfilling the inclusion criteria will be enrolled for the study after obtaining informed consent. (Annexure – 1) Case record form with follow up chart will be maintained (Annexure – 2). This study will be conducted as a randomized case control prospective study in the Department of Surgery in Rajarajeswari medical college and Hospital, Bangalore. Totally 60 patients fulfilled the inclusion criteria for elective inguinal hernia surgeries were admitted in our hospital. The patients will be randomized into study group A and B. Patients in group A will be given a single dose of 1.5gm Cefaperazone + sulbactam intravenously half an hour before operation and patients in group B will be given multiple doses of antibiotic intravenously for 5 days post operatively. All the surgeries will be carried out in the same theatre environment, and same preoperative safety protocol, and post-operative care will be followed for all patients. Temperature and vitals are monitored periodically, and the charts are maintained. Based on the Southampton scoring system on post-operative day 3rd, 5th, 7th, 14 th and 30th days the wounds will be inspected and the infection grades will be noted. Patients will be followed up with the drugs to be administered and ensured the antibiotics are given at appropriate time as per the protocol.

Assessment tools:

- -Development of infection will be measured based on Southampton grade.
- -Outcomes will be measured in terms of rate of surgical site infection in single dose and multiple dose antibiotic groups.

**STATISTICAL ANALYSIS:**

The collected data were entered in the Microsoft Excel 2016 and analysed with IBM SPSS Statistics for Windows, Version 29.0.(Armonk, NY: IBM Corp).To describe about the data descriptive statistics

frequency analysis, percentage analysis were used for categorical variables and the mean & S.D were used for continuous variables. To find the significant difference between the bivariate samples in Independent groups the Independent sample t-test was used. To find the significance in qualitative categorical data Chi-Square test was used similarly if the expected cell frequency is less than 5 in 2×2 tables then the Fisher's Exact was used. In all the above statistical tools the probability value .05 is considered as significant level.

**RESULTS:**

**Table: Age distribution**

| **Age distribution** | | |
|---|---|---|
| | Frequency | Percent |
| Upto 30 yrs | 10 | 16.7 |
| 31 - 40 yrs | 13 | 21.7 |
| 41 - 50 yrs | 17 | 28.3 |
| 51 - 60 yrs | 20 | 33.3 |
| Total | 60 | 100.0 |

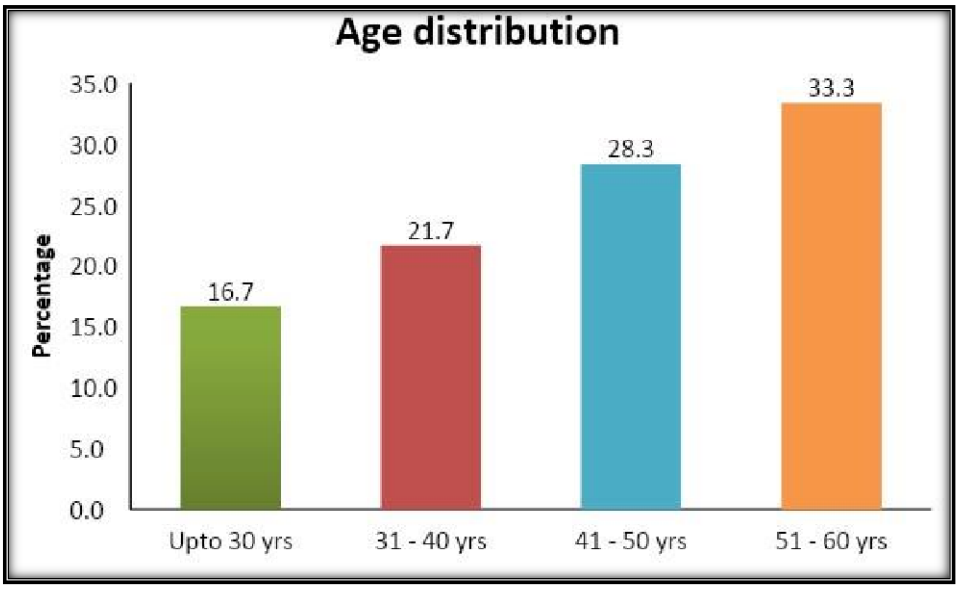


**Figure 24:Age distribution between the two groups**

The above table shows Age distribution were <30 years is 16.7%, 31-40 years is 21.7%, 41-50 years is 28.3%, 51-60 years is 33.3%.

**Table: Gender distribution**

| **Gender distribution** | | |
|---|---|---|
| | Frequency | Percent |
| Female | 14 | 23.3 |
| Male | 46 | 76.7 |
| Total | 60 | 100.0 |

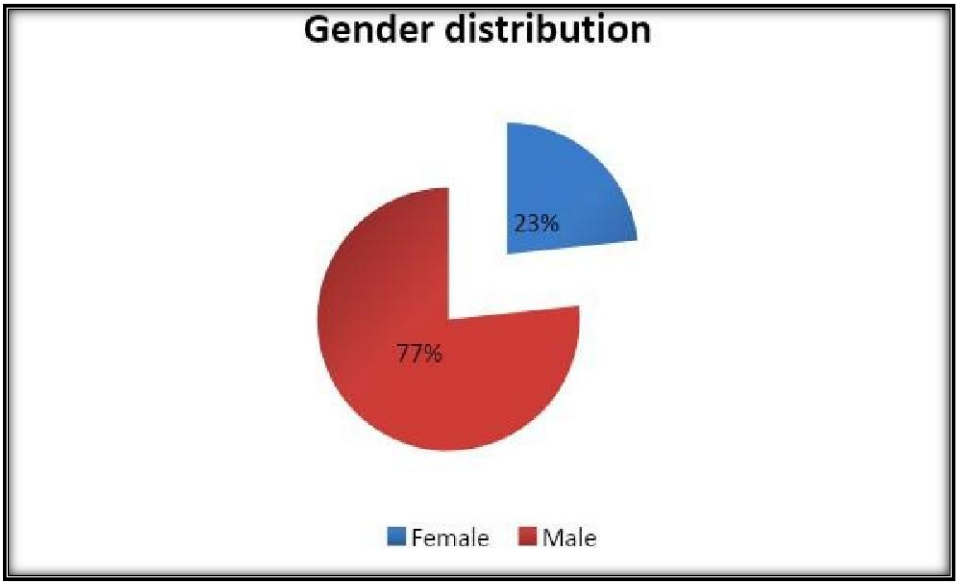


**Figure 25: Gender distribution between the two groups**

The above table shows Gender distribution were Female is 23.3%, Male is 76.7%.

**Table: Comparison of Age between Groups by Pearson's Chi-Square test**

| | | | Groups | | Total | χ 2 - value | p-value |
|---|---|---|---|---|---|---|---|
| | | | Group A Single Dose | Group B Multi Dose | | | |
| Age | Upto 30 yrs | Count | 5 | 5 | 10 | 0.136 | 0.987 # |
| | | % | 16.7% | 16.7% | 16.7% | | |
| | 31 - 40 yrs | Count | 6 | 7 | 13 | | |
| | | % | 20.0% | 23.3% | 21.7% | | |
| | 41 - 50 yrs | Count | 9 | 8 | 17 | | |
| | | % | 30.0% | 26.7% | 28.3% | | |
| | 51 - 60 yrs | Count | 10 | 10 | 20 | | |
| | | % | 33.3% | 33.3% | 33.3% | | |
| Total | | Count | 30 | 30 | 60 | | |
| | | % | 100.0% | 100.0% | 100.0% | | |
| # No Statistical Significance at p > 0.05 level | | | | | | | |

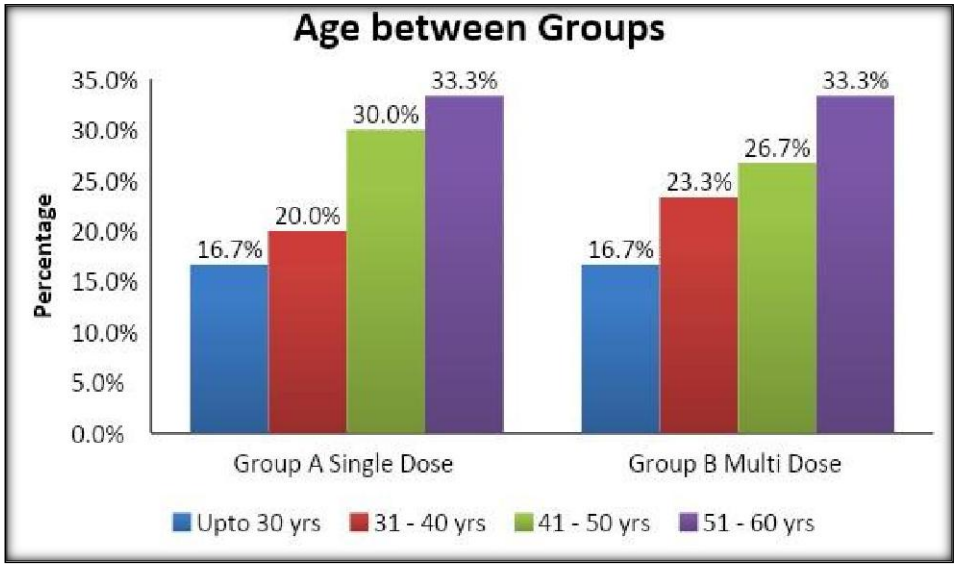


**Figure: Comparison of Age between Groups by Pearson's Chi- Square test**

The above table shows comparison of Age between Groups by Pearson's Chi-Square test were 2=0.136, p=0.987>0.05 which shows no statistical significance association between Age and Groups. The mean ± standard deviation of the age in GROUP A SINGLE DOSE were 43.5±11.6 years and in GROUP B MULTI DOSE were 42±11.4 years

**Table: Comparison of Gender between Groups by Pearson's Chi- Square test**

| | | | Groups | | Total | χ 2 - value | p-value |
|---|---|---|---|---|---|---|---|
| | | | Group A Single Dose | Group B Multi Dose | | | |
| Gender | Female | Count | 7 | 7 | 14 | 0.000 | 1.000 # |
| | | % | 23.3% | 23.3% | 23.3% | | |
| | Male | Count | 23 | 23 | 46 | | |
| | | % | 76.7% | 76.7% | 76.7% | | |
| Total | | Count | 30 | 30 | 60 | | |
| | | % | 100.0 % | 100.0 % | 100.0 % | | |
| # No Statistical Significance at p > 0.05 level | | | | | | | |

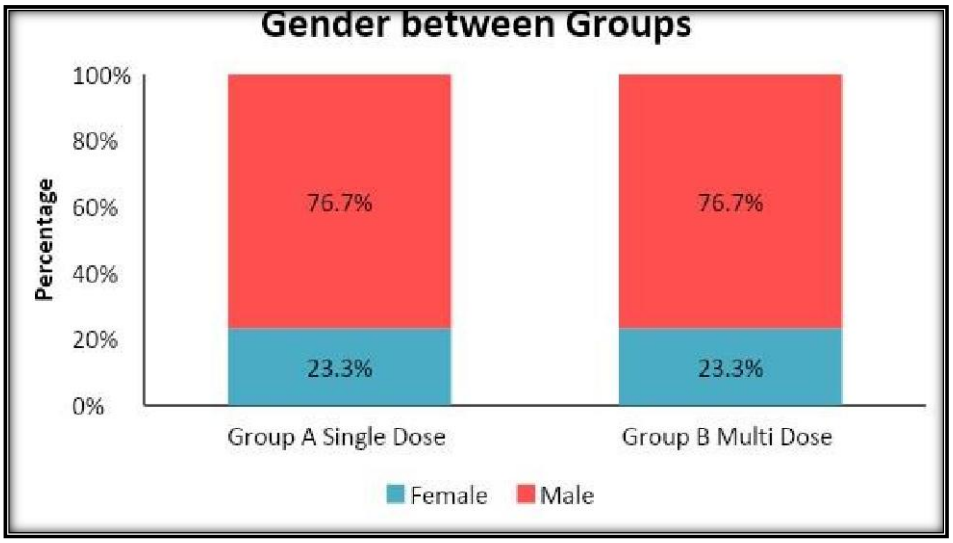


**Figure: Comparison of Gender between Groups by Pearson's Chi- Square test**

The above table shows comparison of Gender between Groups by Pearson's Chi-

Square test were $\chi 2=0.000$, $p=1.000>0.05$ which shows no statistical significance association between Gender and Groups.

**Table : Comparison of Type of Hernia between Groups by Pearson's Chi-Square test**

| | | | Groups | | Total | χ 2 - value | p-value |
|---|---|---|---|---|---|---|---|
| | | | Group A Single Dose | Group B Multi Dose | | | |
| Type of Hernia | Bilateral | Count | 0 | 5 | 5 | 5.455 | 0.052 # |
| | | % | 0.0% | 16.7% | 8.3% | | |
| | Unilateral | Count | 30 | 25 | 55 | | |
| | | % | 100.0 % | 83.3% | 91.7% | | |
| Total | | Count | 30 | 30 | 60 | | |
| | | % | 100.0 % | 100.0 % | 100.0 % | | |

# No Statistical Significance at p > 0.05 level

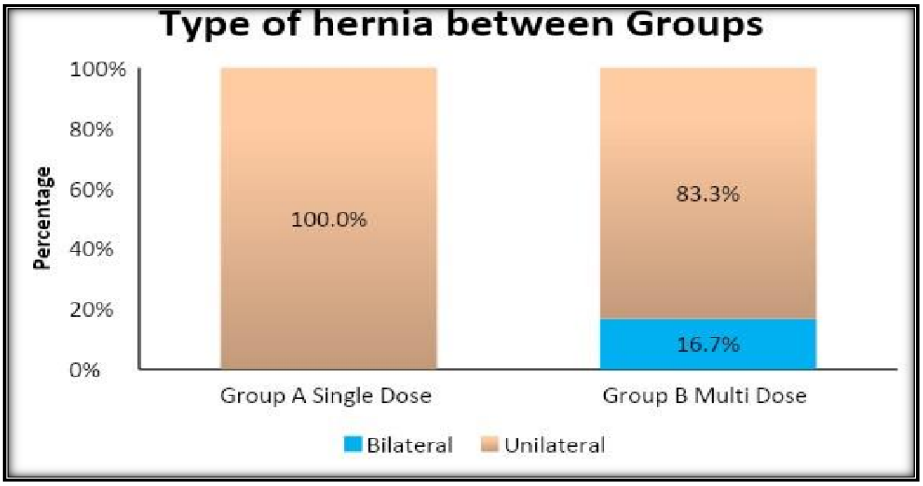


**Figure: Comparison of Type of Hernia between Groups by Pearson's Chi- Square test**

The above table shows comparison of Type of Hernia between Groups by Pearson's Chi-Square test were 2=5.455, p=0.052>0.05 which shows no statistical significance association between Type of Hernia and Groups.

**Table: Comparison of Side of Hernia between Groups by Pearson's Chi- Square test**

| | | | Groups | | Total | χ 2 - value | p-value |
|---|---|---|---|---|---|---|---|
| | | | Group A Single Dose | Group B Multi Dose | | | |
| Side of Hernia | Left | Count | 15 | 15 | 30 | 0.000 | 1.000 # |
| | | % | 50.0% | 50.0% | 50.0% | | |
| | Right | Count | 15 | 15 | 30 | | |
| | | % | 50.0% | 50.0% | 50.0% | | |
| Total | | Count | 30 | 30 | 60 | | |
| | | % | 100.0 % | 100.0 % | 100.0 % | | |
| # No Statistical Significance at p > 0.05 level | | | | | | | |

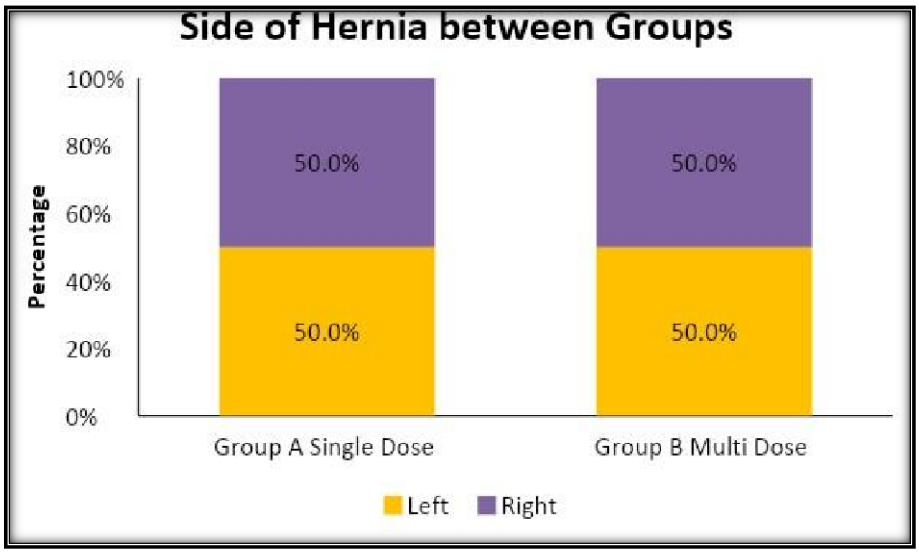


**Figure: Comparison of Side of Hernia between Groups by Pearson's Chi- Square test**

The above table shows comparison of Side of Hernia between Groups by Pearson's Chi-Square test were 2=0.000, p=1.000>0.05 which shows no statistical significance association between Side of Hernia and Groups.

**Table: Comparison of SSI between Groups by Pearson's Chi-Square test.**

| | | | Groups | | Total | χ 2 - value | p-value |
|---|---|---|---|---|---|---|---|
| | | | Group A Single Dose | Group B Multi Dose | | | |
| | Day 3 | Count | 2 | 1 | 3 | | |
| | | % | 66.7% | 100.0% | 75.0% | | |
| | Day 5 | Count | 1 | 0 | 1 | | |
| | | % | 33.3% | 0.0% | 25.0% | | |
| | Day 7 | Count | 0 | 0 | 0 | | |
| | | % | 0.0% | 0.0% | 0.0% | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SSI | Day 14 | Count | 0 | 0 | 0 | 0.444 | 1.000 # |
| | | % | 0.0% | 0.0% | 0.0% | | |
| | Day 30 | Count | 0 | 0 | 0 | | |
| | | % | 0.0% | 0.0% | 0.0% | | |
| Total | | Count | 3 | 1 | 4 | | |
| | | % | 100.0% | 100.0% | 100.0% | | |
| # No Statistical Significance at p > 0.05 level | | | | | | | |

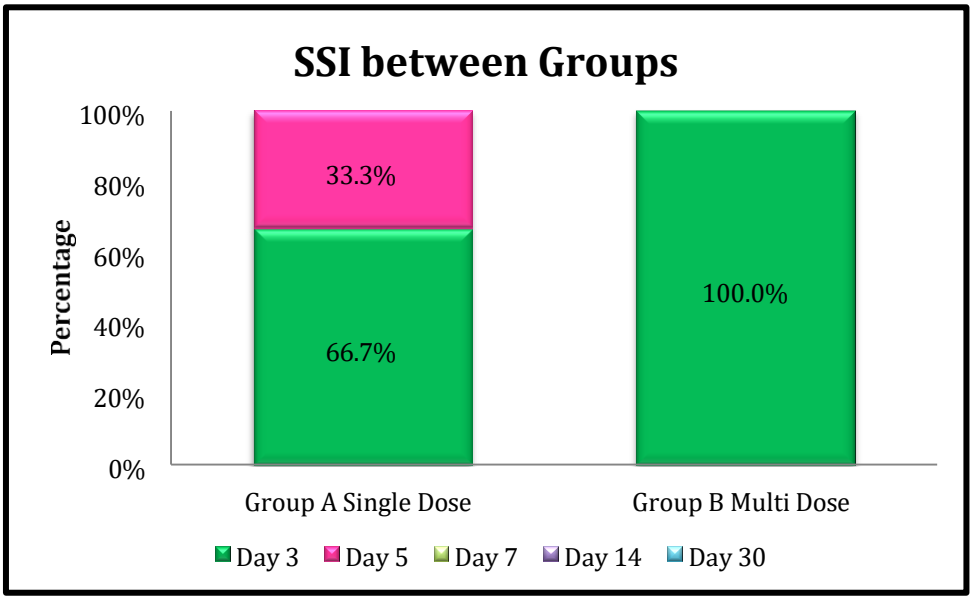


**Figure: Comparison of SSI between Groups by Pearson's Chi-Square test**

The above table shows comparison of SSI between Groups by Pearson's Chi-Square test were

2=0.313, p=1.000>0.05 which shows no statistical significance association between SSI and Groups.

Table: Comparison of Deep SSI between Groups by Fisher's exact test

| | | | Groups | | Total | χ 2 - value | p-value |
|---|---|---|---|---|---|---|---|
| | | | Group A Single Dose | Group B Multi Dose | | | |
| Deep SSI | No | Count | 29 | 30 | 59 | 1.017 | 1.000 # |
| | | % | 96.7% | 100.0 % | 98.3% | | |
| | Yes | Count | 1 | 0 | 1 | | |
| | | % | 3.3% | 0.0% | 1.7% | | |
| Total | | Count | 30 | 30 | 60 | | |
| | | % | 100.0 % | 100.0 % | 100.0 % | | |
| # No Statistical Significance at p > 0.05 level | | | | | | | |

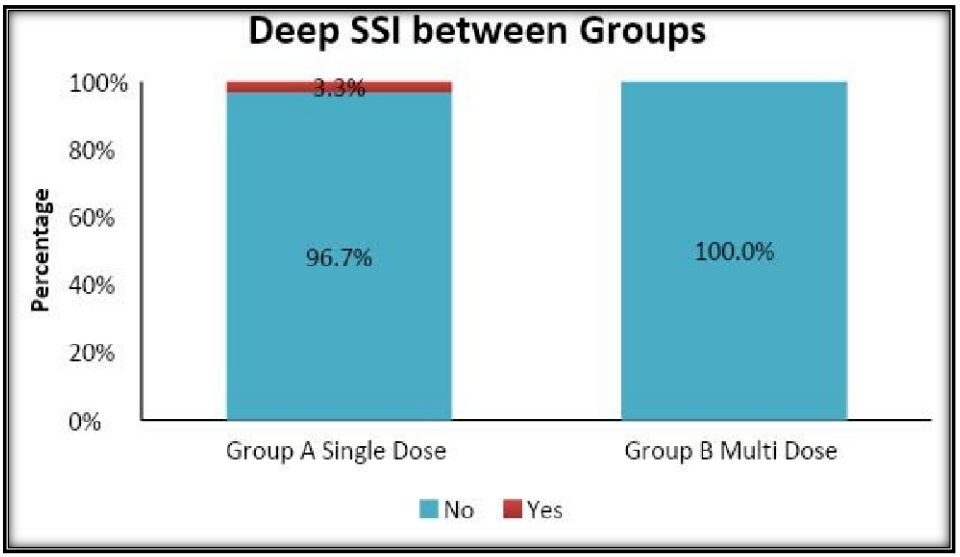


**Figure: Comparison of Deep SSI between Groups by Fisher's exact test**

The above table shows comparison of Deep SSI between Groups by Fisher's exact test were 2=1.017, p=1.000>0.05 which shows no statistical significance association between Deep SSI and Groups.

**Table: Comparison of Superficial SSI between Groups by Fisher's exact test**

| | | | Groups | | Total | χ 2 - value | p-value |
|---|---|---|---|---|---|---|---|
| | | | Group A Single Dose | Group B Multi Dose | | | |
| Superficial SSI | No | Count | 29 | 29 | 58 | 0.000 | 1.000 # |
| | | % | 96.7% | 96.7% | 96.7% | | |
| | Yes | Count | 1 | 1 | 2 | | |
| | | % | 3.3% | 3.3% | 3.3% | | |
| Total | | Count | 30 | 30 | 60 | | |
| | | % | 100.0% | 100.0% | 100.0% | | |
| # No Statistical Significance at p > 0.05 level | | | | | | | |

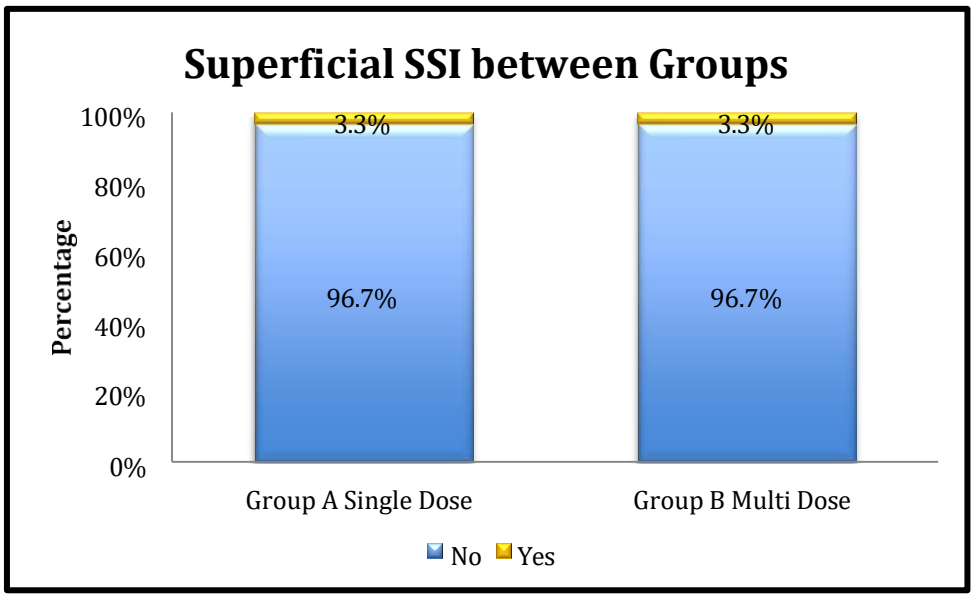


**Figure: Comparison of Superficial SSI between Groups by Fisher's exact test**

The above table shows comparison of Superficial SSI between Groups by Fisher's exact test were

2=0.741, p=0.671>0.05 which shows no statistical significance association between Superficial SSI and Groups.

**Table: Comparison of Conversion form SD to MD between Groups by Fisher's exact test**

| | | | Groups | | Total | χ2 - value | p-value |
|---|---|---|---|---|---|---|---|
| | | | Group A Single Dose | Group B Multi Dose | | | |
| Conversion form SD to MD | No | Count | 29 | 30 | 59 | 1.017 | 1.000 # |
| | | % | 96.7% | 100.0% | 98.3% | | |
| | Yes | Count | 1 | 0 | 1 | | |
| | | % | 3.3% | 0.0% | 1.7% | | |
| Total | | Count | 30 | 30 | 60 | | |
| | | % | 100.0% | 100.0% | 100.0% | | |
| # No Statistical Significance at p > 0.05 level | | | | | | | |

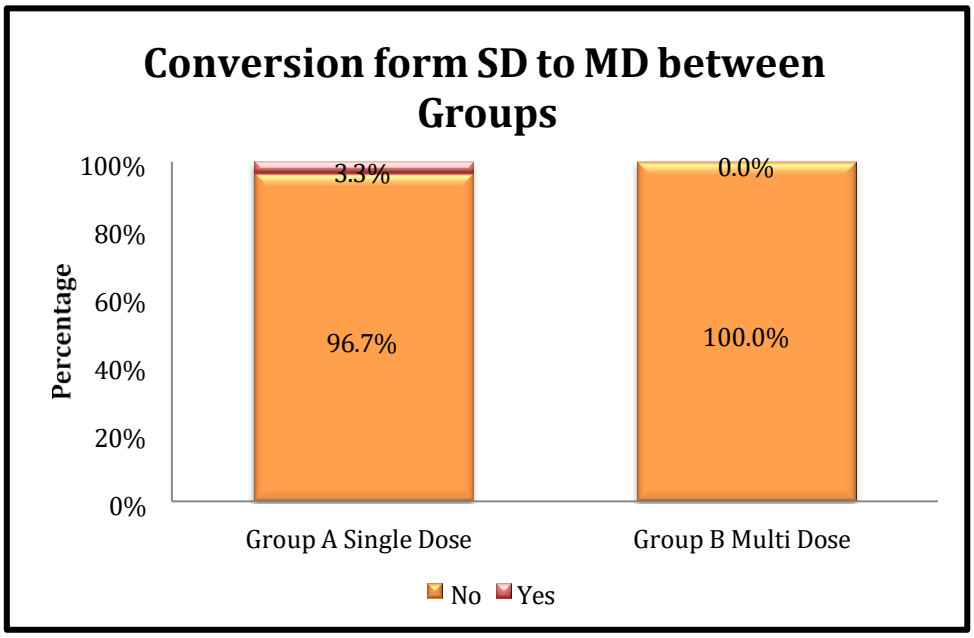


**Figure: Comparison of Conversion form SD to MD between Groups by Fisher's exact test**

The above table shows comparison of Conversion form SD to MD between Groups by Fisher's exact test were 2=2.069, p=0.492>0.05 which shows no statistical significance association between Conversion form SD to MD and Groups.

**Table: Comparison of Average cost of Antibiotics between Groups by Independent sample t-test**

| Variable | Groups | N | Mean | SD | t-value | p-value |
|---|---|---|---|---|---|---|
| Average cost of Antibiotics | Group A Single Dose | 30 | 377.0 | 662.2 | 20.149 | 0.0005 ** |
| | Group B Multi Dose | 30 | 2900.0 | 0.0 | | |
| ** Highly Statistical Significance at p < 0.01 level | | | | | | |

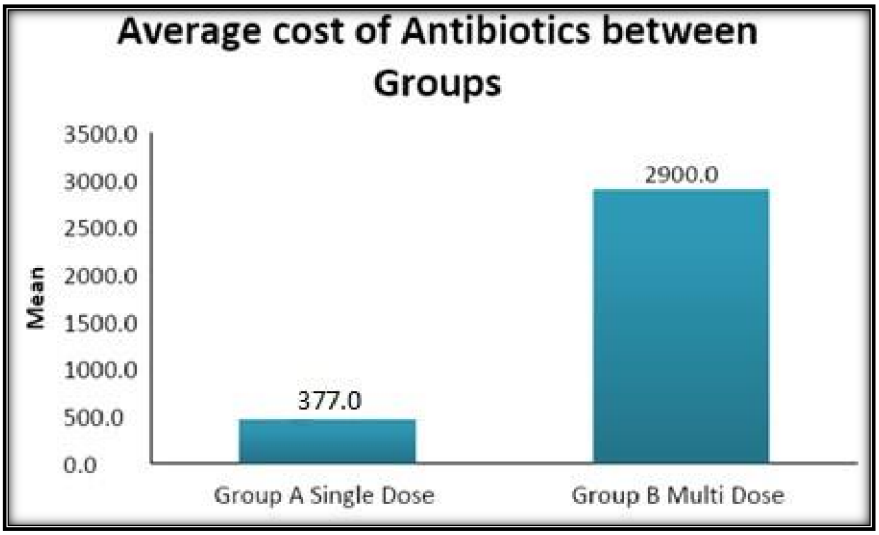


**Figure 34:Comparison of Average cost of Antibiotics between Groups by Independent sample t-test**

The above table shows comparison of Average cost of Antibiotics between Groups by Independent sample t-test were t-value=20.149, p-value=0.0005<0.01 which shows highly statistical significance difference at p < 0.01 level.

**Table: Group Statistics of Average cost of Antibiotics between Groups in Conversion from SD to MD**

| **Group Statistics** | | | | | |
|---|---|---|---|---|---|
| | Groups | Conversion from SD to MD | N | Mean | SD |
| Average cost of Antibiotics | Group A Single | Yes | 1 | 2900.0 | 0.0 |
| | Dose | | | | |
| Average cost of Antibiotics | Group A Single Dose | Yes | 1 | 2900.0 | 0.0 |
| | | No | 29 | 290.0 | 0.0 |
| | Group B Single Dose | Yes | 0 | 0.0 | 0.0 |
| | | No | 30 | 2900.0 | 0.0 |

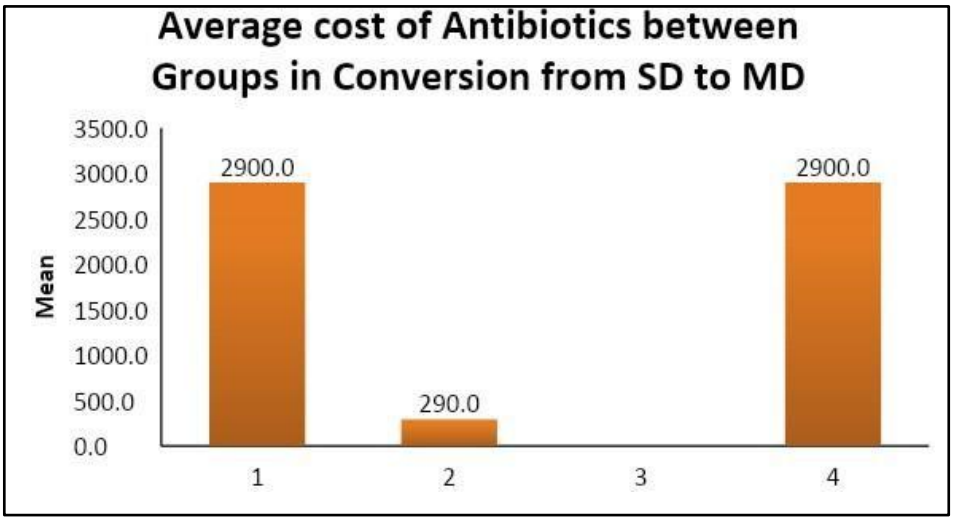


**Figure: Group Statistics of Average cost of Antibiotics between Groups in Conversion from SD to MD**

The above table shows the mean ± standard deviation of the Antibiotics between Groups in Conversion from SD to MD.

**Summary**

- The Age distribution were <30 years is 16.7%, 31-40 years is 21.7%, 41-50 years is 28.3%, 51-60 years is 33.3%.
- The Gender distribution were Female is 23.3%, Male is 76.7%.
- The Age between Groups by Pearson's Chi-Square test were 2=0.136, p=0.987>0.05 which shows no statistical significance association between Age and Groups. The mean ± standard deviation of the age in Group A Single Dose were 43.5±11.6 years and in Group B Multi Dose were 42±11.4 years
- The Gender between Groups by Pearson's Chi-Square test were 2=0.000, p=1.000>0.05 which shows no statistical significance association between Gender and Groups.
- The comparison of Type of Hernia between Groups by Pearson's Chi-Square test were

2=5.455, p=0.052>0.05 which shows no statistical significance association between Type of Hernia and Groups.

- The Side of Hernia between Groups by Pearson's Chi-Square test were 2=0.000, p=1.000>0.05 which shows no statistical significance association between Side of Hernia and Groups.
- The comparison of SSI between Groups by Pearson's Chi-Square test were 2=0.313, p=1.000>0.05 which shows no statistical significance association between SSI and Groups.
- The Deep SSI between Groups by Fisher's exact test were 2=1.017, p=1.000>0.05 which shows no statistical significance association between Deep SSI and Groups.
- The Superficial SSI between Groups by Fisher's exact test were 2=0.741, p=0.671>0.05 which shows no statistical significance association between Superficial SSI and Groups.
- The Conversion form SD to MD between Groups by Fisher's exact test were 2=2.069, p=0.492>0.05 which shows no statistical significance association between Conversion form SD to MD and Groups.
- The Average cost of Antibiotics between Groups by Independent sample t-test were t-value=20.149, p-value=0.0005<0.01 which shows highly statistical significance difference at p < 0.01 level.
- The mean ± standard deviation of the Antibiotics between Groups in Conversion from SD to MD.

**DISCUSSION:**

Surgeries performed on elective basis are generally clean ones.

The factors playing a major role in averting surgical site infection other than risk factors associated with patients, are the atmosphere and sterility of operating room, the sterility of instruments, surgeons due efforts to maintain asepsis during the surgery.
The operating surgeon must not have the freedom of prescribing antibiotics due to faulty techniques as it can never be a substitute for a clean aseptic environment. In clean elective surgeries, the source of infection in case of wound sepsis is often from an exogenous source like the nostril or oral cavity of surgeons or skin of patient.
In our study patient risk factors like diabetes mellitus, hypertension, immunocompromised state, hypersensitivity to any drugs and any other comorbidities that may hamper the results have been strictly excluded.
The literature is of the opinion that the rate of infection in clean surgeries is as low as 1.5%. Also the studies involving hernia show even lower fraction of infection. This study was performed to evaluate the worth and efficacy of single dose prophylactic antibiotics compared to conventional antibiotics.
Study results of 60 patients studied with no loss to follow up revealed the following findings.
Out of the30 patients belonging to group A i.e, who were given a single dose of prophylactic antibiotic, 2 developed signs of SSI within 1st week. And in group B, i.e, those who were given conventional multi dose antibiotics, out of 30 patients, only 1 developed SSI within 1st week . The overall p value was 1.000 which was not significant statistically.
As per CDC guidelines , study group i.e, group A, 1 had deep and 1 had superficial infections which was not significant as compared to the control group i.e, group B with a p value of 0.671
In our study the average cost of antibiotic between both the groups was 377 Rs in group A and 2900Rs in group B which was Highly Statistical Significance with p value

**0.0005**.
SSI grading as per Southampton grade was also insignificant with p value of 0.337 . However ,out of the 60 cases group 1 were converted to conventional antibiotics . The use of prophylactic antibiotic in all surgical cases has been advocated ever since, the concept of use of antibiotic preoperatively to curtain and prevent wound infection was postulated by Bernard and Cole in 1964.
A study conducted by **Jayalal JA et al[32]**, in which the patients in study group undergoing surgeries were given 1gm of injection cefotaxime after test dose 60 min prior to the surgery whereas in the control group, the patients were given 3 days of injection ciprofloxacin 200 mg intravenously twice a day, injection metronidazole 500mg intravenously thrice a day. The infection rate was similar in both groups with no significant differences.

Also a network meta-analysis by **T. Boonchan et al[83]** about antibiotic prophylaxis for prevention of surgical-site infection after groin hernia surgery which opined that beta lactam antibiotics were most effective SSI prophylaxis for groin hernia repair.
**Naz et al[84]** in a comparative study between a single-dose cefradine as the prophylactic antibiotics versus conventional dose of antibiotics in major gynaecological procedures have stated prophylactic antibiotic use is adequate provided standard principles of operative surgery are adhered.
A randomized clinical study conducted by **N Vinoth et al** on the role of antibiotic prophylaxis in open inguinal hernioplasty revealed that out of the sixty patients under 77 study 5 developed SSI which was 8.3 percent of which 3 were in the case group and 2 in control. They developed only superficial SSI with ODD'S ratio of 0.6429 which was statistically insignificant.
An operating surgeon should weigh the potential risk and also the benefits of giving an antibiotic after a particular procedure especially after a clean and uncontaminated surgery where the chances of SSI is very low.
Any improvement in quality of medical treatment can be attained by proper use of antibiotic which will be effective in preventing and controlling infection. The drug regimens should be optimised depending on the surgical procedure as it becomes burden on the economy.

However our study which was done to assess the effectiveness of a single dose of prophylactic antibiotic versus multiple doses antibiotics has shown no significant difference in the wound infection rate in both the studied groups.

**CONCLUSION**:

By the end of this study we come to a conclusion that use of single dose of antibiotic is as effective as multi dose antibiotic for a clean surgery of inguinal hernia repair in terms of surgical site infection. Additionally use of multi dose antibiotic will increase overall health care cost.

As this study involved only a smaller group of patients from a single institution the effect of operating room, duration of surgery and the surgeon leading to bias could not be assessed.

**SUMMARY**:

Randomized controlled study among 60 patients undergoing elective inguinal hernia surgeries in hospitals attached to RajaRajeswari Medical College, Bengaluru. 60 patients were randomized into two groups by randomization.

Patients in group A will be given single dose of 1.5gm cefaperazone + sulbactum intravenously half an hour before operation.

Patients in group B will be given multiple doses of antibiotic intravenously for 5 days post operatively.

1. Majority of the patients were in the age group of 50-60 years in both groups. There was no significant difference between the control and study group based on age.
2. General profile were comparable between two groups. In our study most of the patients were male . Again there was no significant difference between both the groups in sex wise distribution
3. Incidence of SSI was 3 in total among 60 patients in which 2 SSI were among ( 1 superficial SSI and 1 deep SSI) single dose group as compared to 1 superficial SSI in multiple dose group and the incidence of SSI among the two groups was statistically insignificant.
4. Among 3 patients who had SSI in single dose group ,1 patients had grade 3 , 1 had grade 4 SSI Southampton grades . whereas 1 patient with SSI in multiple dose group had grade 3 SSI.
5. In Patients receiving single dose antibiotic 29 patients were continued in the study group where as 1 patients who had grade 4 SSI was converted to full dose antibiotic.
6. The average cost of antibiotic in single dose group was significantly lesser when compared to multiple dose group.

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