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PROSPECTIVE STUDY ON PREVALENCE OF INFECTIONS AND THEIR ANTIBIOTIC SENSITIVITY IN ORTHOPAEDIC PATIENTS IN TERITIARY CARE TEACHING HOSPITAL.

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Abstract –

Orthopaedic infection is a global problem that affects both developed and developing nations. It has alarming consequences in environments with limited resources, including increased medical costs, drug resistance to commonly prescribed antibiotics, and difficulty in infection management that leads to high mortality. Therefore, even one surgical site infection is critical in orthopaedic operating rooms. Orthopaedic infection associated with SSI was seen in India with a variable epidemiology of 4.4%–12%. Orthopaedic infections affect the supporting tissues around the bones and joints.

INTRODUCTION:

1.1BACKGROUND: Infection following orthopaedic surgery has been a long source of concern for orthopaedic doctors. Even if all aseptic measures are now done before surgeries, including fumigation, sterilising procedures, antiseptics and disinfectants, and the use of antibiotics throughout the recovery period, there has always been an acceptable limit of about 1% infection among orthopaedic practises. The term "surgical site infection" (SSI) refers to microbial contamination of the surgical wound that occurs within 30 days of the procedure or within a year if the patient has an implant. The estimated annual incidence of infections worldwide is between 1.07% and 1.75%, with less than 1% considered to be acceptable in clean and closed procedures. Even though the infection is healed, surgical site infections have been linked to increased morbidity, prolonged hospital stays, increased financial burden, stressful conditions for family members, poor surgical outcomes, and decreased patient satisfaction levels. In order to identify surgical site infections for infection monitoring in hospitals, human abstraction of medical records is required. For research purposes, administrative or claims data are primarily used. The aim of this study was to test whether automating the abstraction process using natural language processing (NLP) based models that analyse the free-text notes of the medical record can identify surgical site infections with predictive abilities that match the manual abstraction process and that surpass surgical site infection identification from administrative data. Postoperative infections are regarded as catastrophic consequences in orthopaedics that dramatically raise medical costs, extend hospital stays, and may even result in mortality. These surgeries involve the use of implantation materials, which raises the risk of infections that can be notoriously difficult to treat due to the development of biofilm. According to studies, Staphylococcus aureus (S. aureus) is the most frequent pathogen to cause orthopaedic infections, with methicillin resistance rates as high as 63% and vancomycin resistance rates ofabout 25%. Other pathogens that can cause orthopaedic infections

include Pseudomonas aeruginosa, E. coli, and Enterobacteriaceae. Additionally, multi-drug resistance organisms were discovered in 37.5% to 65.5% of postoperative orthopaedic infections.

ANTIBIOTIC SENSITIVITY: In orthopaedic infectious situations, the culture and sensitivity report provide greater guidance for selecting the right antibiotic in order to achieve better results with fewer treatment failures. This will undoubtedly make it easier to administer different antibiotics, and smart decisions can maintain the resistance of stronger antibiotics.

1.1.1 EPIDEMIOLOGY: The incidence rate of SSI is estimated to be between 10 and 20 percent worldwide and it is the most common type of HAI in low- and middle-income countries. Gram-negative Escherichia coli, which causes SSI in procedures, is the most frequently reported bacteria and accounts for 6.7–50% of incidence. The second most frequently reported microorganism is gram-positive Staphylococcus aureus. Depending on the procedure type, the percentage of SSI ranges from 0.5 to 9.0%, according to the European Centre for Disease Prevention and Control (ECDC). According to the World Health Organisation (WHO), the incidence and prevalence of SSIs are underreported in low and middle income countries due to the scarcity and poor quality of data. Taking into account the statistics from various nations, WHO calculated the prevalence

This registry-based, cross-sectional study was conducted in six educational hospitals in Tehran from March, 2017 to March, 2018. First, six hospitals (over 250 beds) were randomly selected. After that, data were collected from two sources in hospitals. One of them is the information of patients infected in orthopaedic surgeries from 21 March, 2017 to March, 2018 - orthopaedic SSIs were based on the health information management (HIM) reporting. The second one was the orthopaedic SSIs which were based on National Nosocomial Infections Surveillance system (NNIS) registries in each six mentioned hospitals. Overall, we collected 262 and 241 identical codes of SSIs from HIM and NNIS, respectively from 2017 to2018 (N = 503, after the exclusion of duplicates).

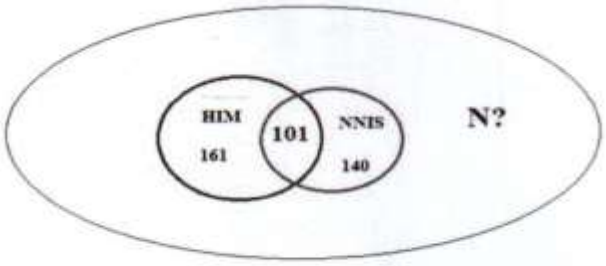


Figure :Distribution of orthopaedic SSIs among six educational hospitals in Tehran based on two data sources

The results of studying 503 SSIs in six educational hospitals during the 2017–2018 period showed that the coverage percentages based on existing data in NNIS and HIM were 59.95 and 65.17%, respectively. There were 54 (26.73%) females and 148 (73.26%) male orthopaedic SSIs in the six relevant educational hospitals out of 202 total cases. Orthopaedic SSI cases ranged in age from 32 to 62, with a median age of 44 of these cases, 154 (76.24%) had postdischarge detection, while 48 (23.76%) had pre-discharge detection. Overall, SSIs occurred in 92 (45.55%) cases during Open Reduction and Internal Fixation (ORIF), 80 (39.60%) cases during various orthopaedic procedures, 19 (9.40%) cases during Total Knee Arthroplasty (TKA), and 11 (5.45%) cases during Total Hip Arthroplasty. The most frequent bacteria were Klebsiella (10.89%) and Staphylococcus aureus (11.38%). microorganisms that are common in orthopaedic SSIs. Also, 5 (2.47%)individuals died as a result of orthopaedic SSIs. The kind of microorganism (P = 0.001) and the amount of time between surgery and infection (P 0.001) were found to be statistically significantly associated with the occurrence of SSIs (post or pre discharge). Prior to infection occurrence, the median hospital stay for surgery-related reasons was 11 (7–19) days. SSIs caused postoperative hospitalisation to last longer, on average 17 (8–29) days. Additionally, the median time from surgery to the onset of the infection was 27.5 days, which was shorter than the median time

for post-discharge SSIs (36.5 days) (P 0.001), 110 (54.46%) orthopaedic SSIs were fully identified within 30 days of the treatment, Additionally, 17.82% of them were found within 90 days.

AIM AND OBJECTIVES

- **AIM**:
- To study the prevalence of infections and its antimicrobial sensitivity in orthopedic patients.
- **OBJECTIVES:**
- To detect prevalence of infections in orthopedic patients.
- To identify the bacterial pattern.
- To determine the antibiotic sensitivity and antibiotic resistance.

METHODOLOGY

- **STUDY SITE**: Department of Orthopaedics at Malla Reddy Hospitals.
- **STUDY PERIOD**: 6 months.
- **STUDY SIZE**: 121 Patients.
- **STUDY DESIGN**: Prospective observational.

STUDY CRITERIA

A	**INCLUSION CRITERIA**	➢ Patients of all age groups. ➢ Both genders. ➢ All the patients willing to participate in the study. ➢ All the culture positive and culture negative cases.
B	**EXCLUSION CRITERIA**	➢ Not willing to study

STUDY MATERIALS

- Data collection form
- Informed consent form
- Patient information sheet.

STUDY PROCEDURE

- It is a prospective observational study on prevalence of infections in Orthopaedic patients.
- Study procedure was explained to the subject and informed consent obtained from patients individually. After obtaining ethical clearance ,all required information was collected from patient's profile form and from patients by using data collection tools.
- Clinically suspected orthopaedic patients were interviewed to collect socio-demographic data,clinical data.
- Swabs were collected from the site of infection under aseptic conditions.
- The swabs were put in a sterile test tube.Then the collected sample was taken to the microbiology lab.
- Positive cultures were inspected for their growth characteristics and then gram staining was performed.And also antibiotic sensitivity and antibiotic resistance were identified.
- Thereafter the analysis of the results was done. The detailed project report was prepared and submitted.

STATISTICAL ANALYSIS

- Data was entered into Microsoft Excel and statistical analysis was carried out using Statistical Package for Social Sciences (SPSS) for Microsoft Windows. Continuous variables like age were reported using mean and standard deviation. Categorical data are expressed as proportions, and subgroups were analyzed using Chi-square test .

RESULTS AND DISCUSSION

4.1.1 DEMOGRAPHIC DETAILS OF PATIENTS

TABLE 4.1.1 DISTRIBUTION OF PATIENTS ACCORDING TO AGE

Age(yrs)	TOTAL
8-30	22
31-45	21
46-60	40
60+	38

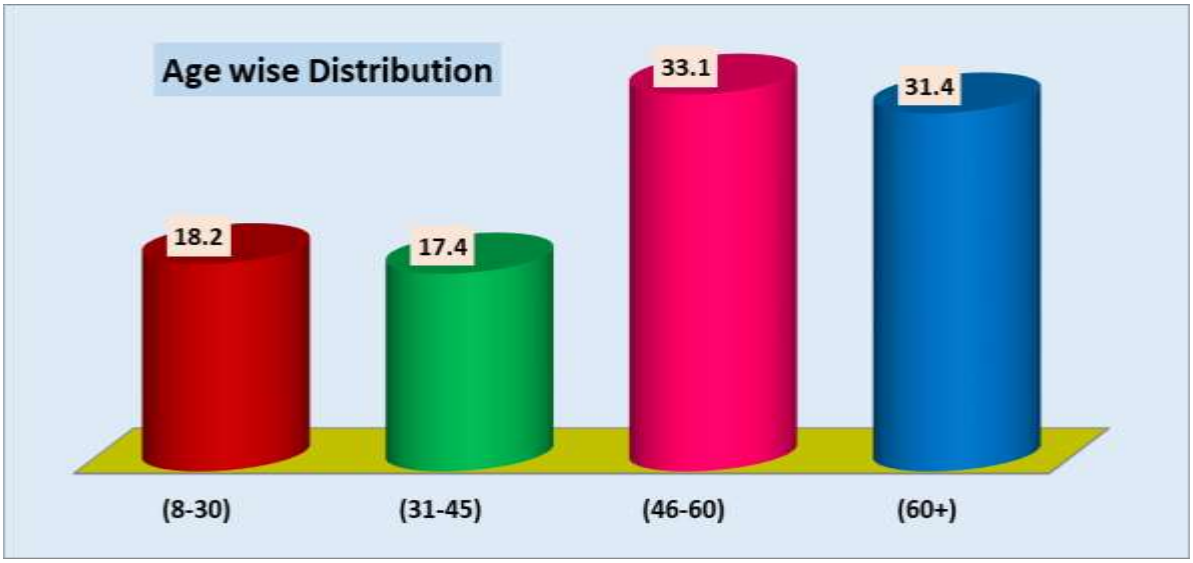
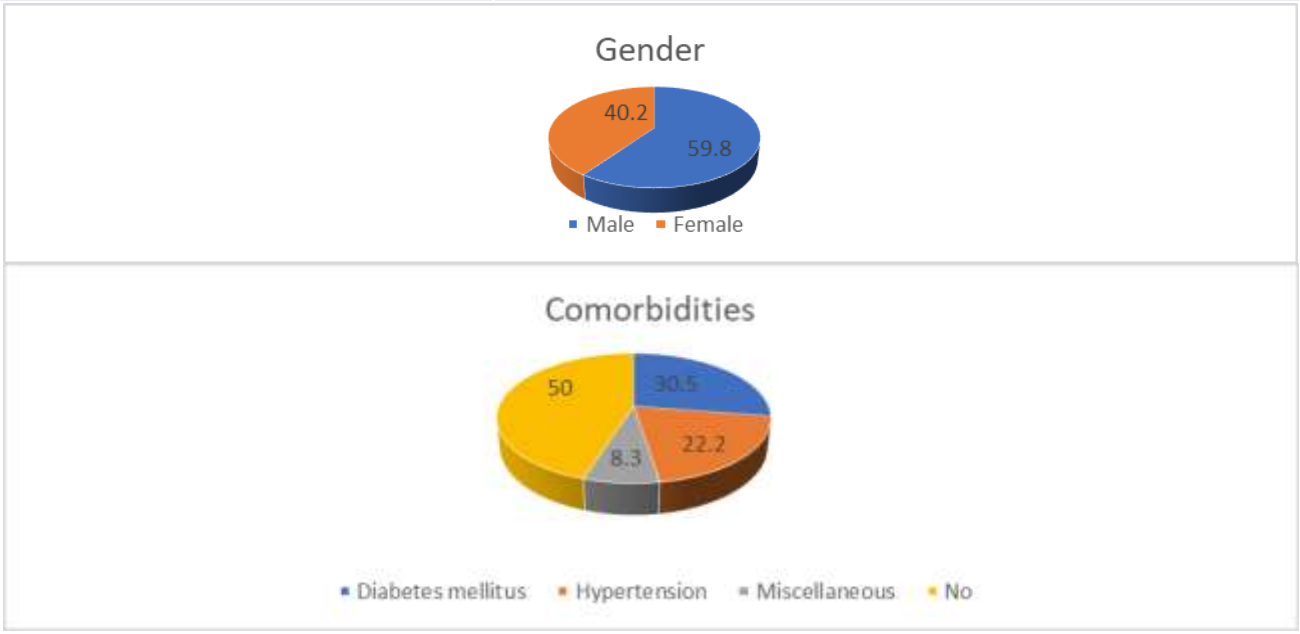


Figure 4.1 Age-wise distribution of patients

INFERENCE:-In this study out of 121 patients -5.4% are upto18 years of age,13.6% of patients are in between 19-40 years of age,36.95% patients are in between 41-60 years of age and 43.8 % patients are above 60 year. Based on the analysis using the chi square Test, the above mentioned parameters denote statistically significant relationship, with p value **0.001**.

TABLE 4.1.2 DISTRIBUTION OF PATIENTS BASED ON COMORBIDITIES

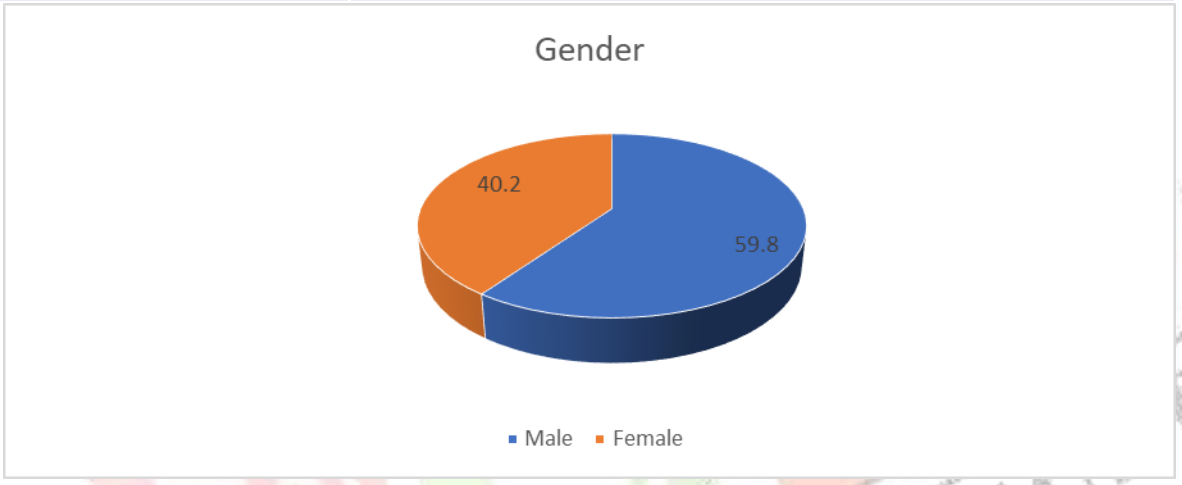
Comorbidities	N(%)
Diabetes mellitus	30.5
HTN	22.2
Miscellaneous	8.3
NA	50



INFERENCE:-In this study of 121 patients-30.5% patients are with Diabetes mellitus,22.2% patients are with Hypertension,8.3% patients are with other diseases and remaining 50% patients are without any comorbidities. Based on the analysis using the chi square Test, the above mentioned parameters denote statistically non significant relationship with p value **0.084**.

TABLE 4.1.3 DISTRIBUTION OF PATIENTS ACCORDING TO GENDER

Gender	N(%)
Male	59.8
Female	40.2



INFERENCE:-In this study of 121 patients-59.8% of patients are male,40.2% patients are female

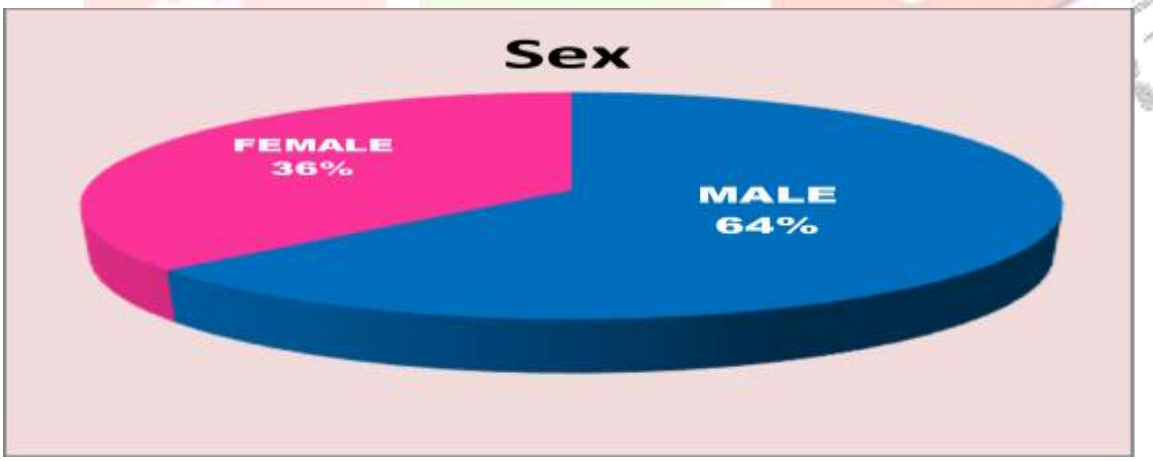
4.1.4 DISTRIBUTION OF PATIENT ACCORDING TO CULTURE POSITIVE AND CULTURE NEGATIVE

Culture(+/-)	n(%)
Positive	59.5
Negative	40.4

INFERENCE:-In this study of 121 patients-59.5% of patients have shown positive culture and 40.4% of patients have shown negative culture.

4.1.5 CROSS TABULATION OF GENDER v/s CULTURE

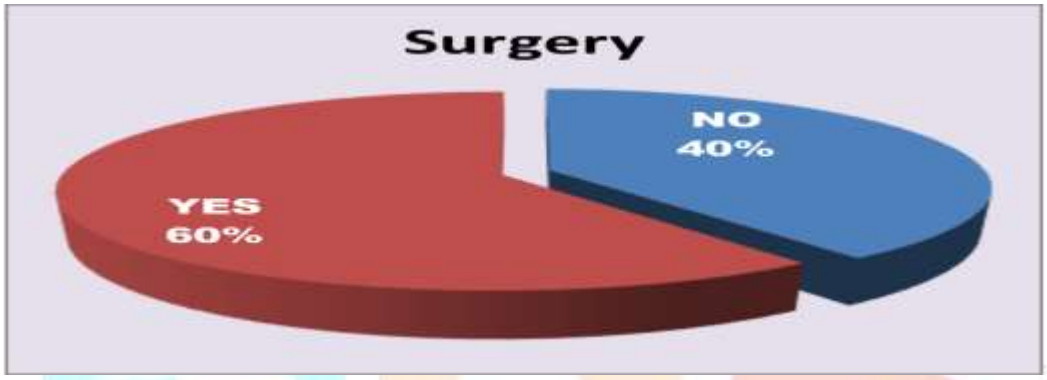
	CULTURE			
SEX	POSITIVE	NEGATIVE	TOTAL	RATIO
Male	43	34	77	63.6
Female	29	15	44	36.4
Total	72	49	121	100



INFERENCE:-This suggests that there is a higher representation of male patients compared to female patients in this data set. Specifically , out of 121 patients reviewed 64% of males shown positive for culture while 36% of females shown positive for culture. Based on the analysis using the chi square test,the above mentioned parameters denote statistically non-significant relationship, with p value **0.28.**

4.1.6 CROSS TABULATION OF SURGERY V/S CULTURE

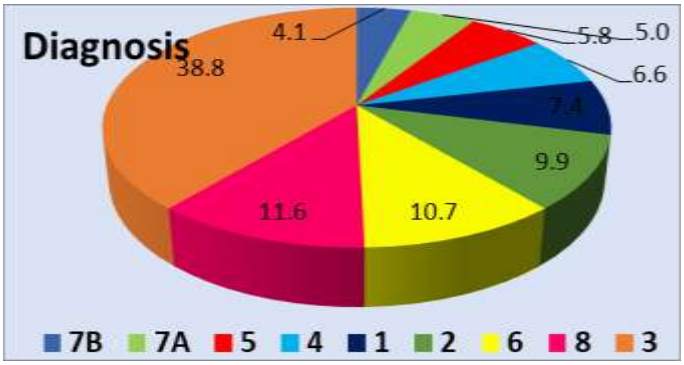
	CULTURE			
SURGERY	POSITIVE	NEGATIVE	TOTAL	RATIO
NO	27	21	48	39.7
YES	45	28	73	60.3
TOTAL	72	49	121	100



INFERENCE:-This suggests that there is a higher representation of patients who have undergone surgery in this data set. Specifically ,out of 121 patients reviewed patients who have undergone surgery make up the majority with approximately(73) 60% of the total population while patients who have not undergone surgery constitute a smaller proportion, accounting for about(48) 40%.Based on the analysis using the chi square Test, the above mentioned parameters denote statistically non-significant relationship, with p value **0.55**.

4.1.7 CROSS TABULATION OF DIAGNOSIS V/S CULTURE

	CULTURE			
DIAGNOSIS	POSITIVE	NEGATIVE	TOTAL	RATIO
1	8	1	9	7.4
2	12	0	12	9.9
3	21	26	26	38.8
4	7	1	8	6.6
5	4	3	7	5.8
6	8	5	13	10.7
7A	5	1	6	5.0
7B	4	1	5	4.1
8	3	11	14	11.6
TOTAL	72	49	121	100.0

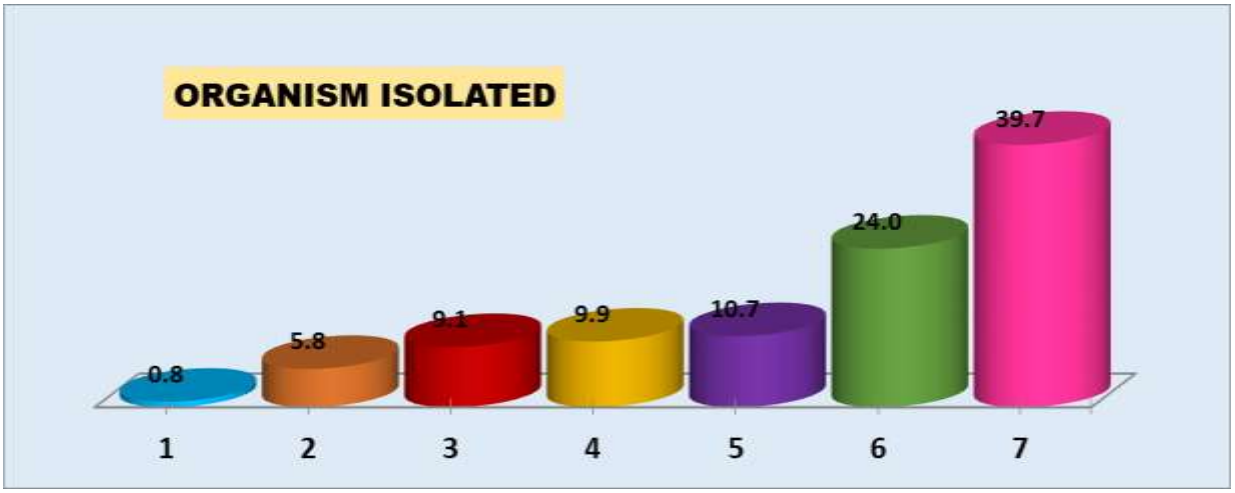


1-Implant infection
2-Surgical site infection
3-Fracture
4-Prosthetic joint infection
5-Hip arthroplasty
6-Osteomyelitis
7A-Septic arthritis
7B-Osteoarthritis
8-Miscellaneous

INFERENCE:-This suggests that there is a higher representation of patients diagnosed with fracture compared to other diagnosis in this data set. Specifically, out of 121 patients reviewed patients diagnosed with fracture make up the majority with approximately(26) 38.8% of total population, while implant infection constitutes7.4, surgical site infection constitutes 9.9 ,prosthetic joint infection constitiutes6.6 ,hip arthroplasty constitutes5.8 ,osteomyelitis constitutes10.7 ,septic arthritis constitutes5.0 ,osteoarthritis constitutes4.1 ,and others constitutes11.6.

4.1.8 CROSS TABULATION OF ORGANISM ISOLATED V/S CULTURE

	CULTURE			
ORGANISM ISOLATED	POSITIVE	NEGATIVE	TOTAL	RATIO
7		48	48	39.7
1	13		13	10.7
2	29		29	24.0
3	11		11	9.1
4	12		12	9.9
5	7		7	5.8
6	1		1	0.8
TOTAL	73	48	121	100.0

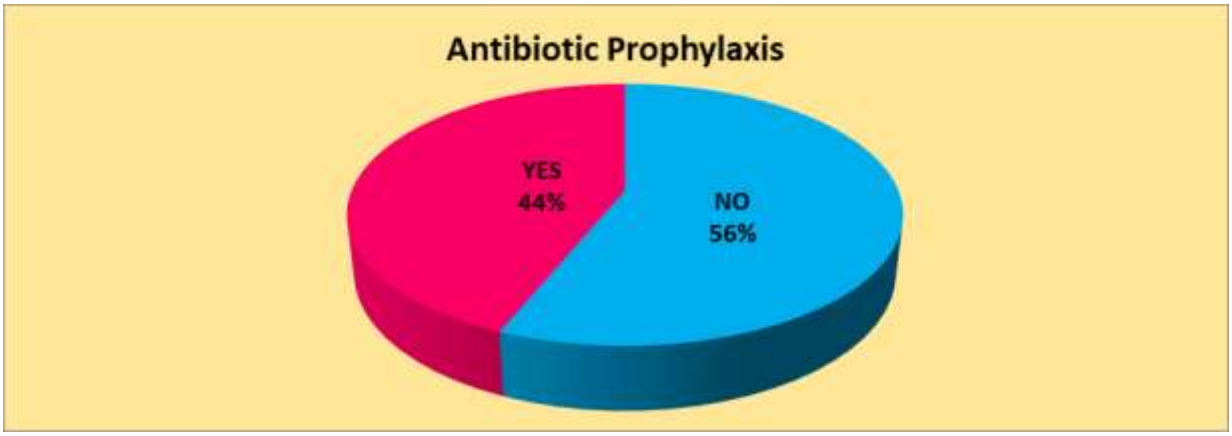


5-Klebsiella species
6-Staphylococcus aureus
3-Pseudomonas species
4-Escherichia coli
2-Enterococcus species
1-Coagulase-negative staphylococci
7- No organism

INFERENCE:- This suggests that there is a higher representation of staphylococcus aureus organism compared to other organisms in this data set. Specifically, out of 121 patients reviewed patients, Staphylococcus aureus make up the majority with 24.0% while Klebsiella species constitute 10.7%,Pseudomonas species constitute 9.1%, Escherichia coli constitute 9.9%,Enterococcus species constitute 5.8%,CoNs constitute 0.8% while no organism constitute 39.7%.

4.1.9 CROSS TABULATION OF ANTIBIOTIC PROPHYLAXIS V/S CULTURE

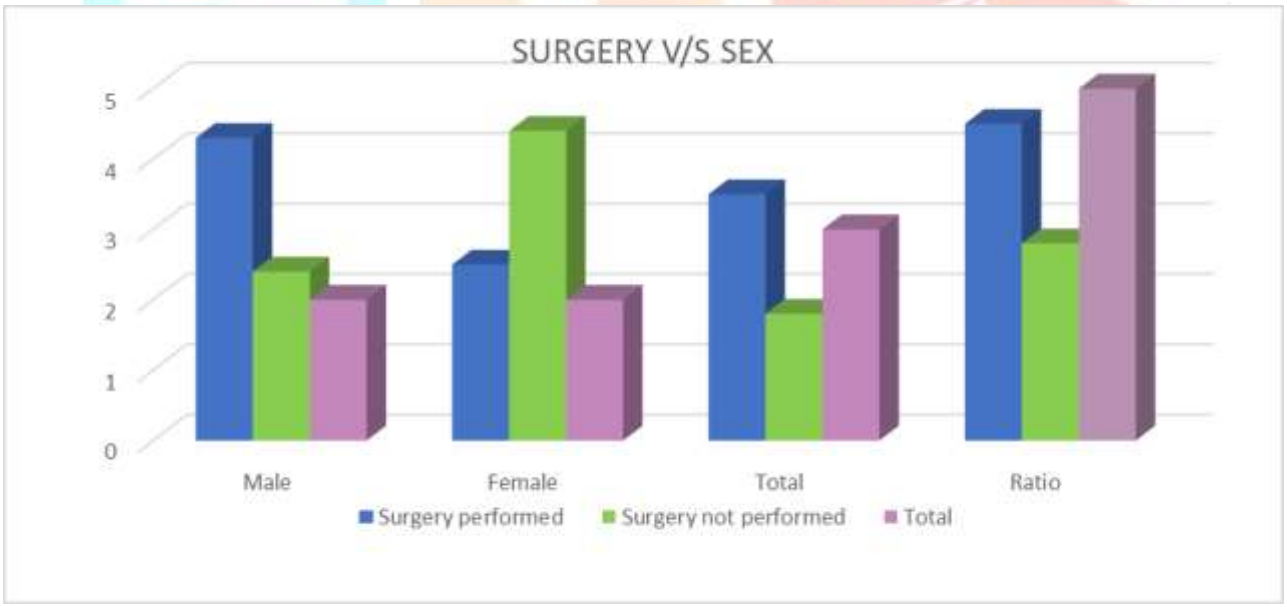
	CULTURE			
ANTIBIOTIC PROPHYLAXIS	POSITIVE	NEGATIVE	TOTAL	RATIO
NO	31	37	68	56.2%
YES	41	12	53	43.8%
TOTAL	72	49	121	100%



INFERENCE:-This suggests that there is a higher representation of patients who are not provided with antibiotic prophylaxis compared to patients who are provided with antibiotic prophylaxis in this data set. Specifically, out of 121 patients reviewed patients who are not provided with antibiotic prophylaxis make up the majority with approximately 56.2%,while patients who are provided with antibiotic prophylaxis constitute 43.8%.Based on the analysis using the chi square Test, the above mentioned parameters denote statistically significant relationship with p value **0.0004**.

4.1.10 COMPARISION BETWEEN SURGERY AND SEX

	SEX			
SURGERY	MALE	FEMALE	TOTAL	RATIO
performed	33	15	48	39.7
not performed	44	29	73	60.3
TOTAL	77	44	121	100



INFERENCE:-This suggests that out of 48 patients, 33 male patients have undergone surgery and 15 female patients have undergone surgery.

4.1.11 COMPARISION BETWEEN ORGANISM ISOLATED AND SEX

	SEX			
ORGANISM ISOLATED	MALE	FEMALE	TOTAL	RATIO
No organism	34	14	48	39.7
Klebsiella sps.	7	6	13	10.7
Staphylococcus aureus	21	8	29	24.0
Pseudomonas sps.	4	7	11	9.1
E.coli	8	4	12	9.9
Enterococcus sps.	3	4	7	5.8
CoNS		1	1	0.8
TOTAL	76	44	121	100.0

INFERENCE:-The above table shows Staphylococcus aureus was frequently isolated organism in both males and females(M-21,F-8).

4.1.12 COMPARISION BETWEEN ORGANISMS ISOLATED AND ANTIBIOTIC SENSITIVITY

Antibiotics	**Klebsiella sps.**	**Staphylococcus aureus**	**Pseudomonas sps.**	**E.Coli**	**Enterococcus sps.**	**CoNS**
Amikacin	3	4	2	0	2	0
Amoxicillin	1	1	1	3	0	0
Ampicillin	2	5	3	7	3	0
Ceftriaxone	3	8	4	2	2	1
Cefazolin	1	1	1	3	0	0
Cefoxitin	1	5	1	0	1	0
Clindamycin	2	5	0	0	0	0
Gentamicin	3	5	5	7	3	0
Levofloxacin	4	1	2	0	2	0
Linezolid	2	16	1	0	3	1
Meropenem	5	6	4	9	1	0
Vancomycin	0	15	3	0	2	0
Tobramycin	2	2	1	5	0	0

INFERENCE:-The above table shows that, Klebsiella sps.,shows more sensitivity to meropenem and least sensitivity to vancomycin. Staphylococcus aureus shows more sensitivity to linezolid and least sensitivity to cefazolin, levofloxacin. Pseudomonas and Enterococcus species have shown more sensitive to gentamicin and less sensitive to clindamycin. E.coli is more sensitive to gentamicin and ampicillin and less sensitive to tobramycin. CoNS is sensitive linezolid and ceftriaxone.

4.1.13 COMPARISION BETWEEN ORGANISM ISOLATED AND ANTIBIOTIC RESISTANCE

Antibiotics	Klebsiella sps.	Staphylococcus aureus	Pseudomonas sps.	E.Coli
Amikacin	4	3	2	0
Amoxicillin	1	2	1	2
Ampicillin	2	5	3	7
Ceftriaxone	2	1	1	2
Cefazolin	3	5	2	2
Cefoxitin	3	10	5	3
Clindamycin	0	2	0	1
Gentamicin	3	8	2	2
Levofloxacin	0	11	3	2
Linezolid	2	1	0	1
Meropenem	1	3	2	0
Vancomycin	1	0	0	1
Tobramycin	1	0	2	0

INFERENCE:-The above table shows that, Klebsiella sps. Shows more resistance to amikacin and least resistance to clindamycin and linezolid. Staphylococcus aureus shows more resistance to levofloxacin and least resistance to vancomycin and tobramycin. Pseudomonas and Enterococcus species have shown more resistance to ampicillin and less resistance to clindamycin. E.coli is more resistance to ampicillin and less resistance to cephalosporins. CoNS is resistance to amikacin and gentamicin.

4.1.14 COMPARISION BETWEEN ORGANISM ISOLATED AND ANTIBIOTIC THERAPY

Antibiotics	Klebsiella sps.	Staphylococcus aureus	Pseudomonas sps.	E.Coli	Enterococcus sps.	CoNS
Amikacin	3	3	2	2	1	0
Amoxicillin	0	2	0	0	0	0
Ampicillin	3	1	0	0	0	0
Ceftriaxone	5	19	6	6	6	1
Cefazolin	0	0	0	3	0	0

Cefoxitin	1	2	1	0	0	0
Clindamycin	4	0	0	0	0	0
Gentamicin	0	0	1	2	0	0
Levofloxacin	1	0	1	0	0	0
Linezolid	1	3	0	0	0	1
Meropenem	0	1	2	4	1	0
Vancomycin	2	4	3	1	1	0
Tobramycin	0	1	0	0	0	0

INFERENCE:- The above table shows that, most frequently prescribed antibiotics are ceftriaxone and less prescribed antibiotic was tobramycin.

4.1.15 OVERALL OUTCOMES WITH P VALUES

S.NO	CATEGORY	TEST PERFORMED	P-VALUE	SIGNIFICANCE
1.	Distribution of patients according to age	Chi-square test	0.001	Significant
2.	Distribution of patients based on comorbidities	Chi-square test	0.084	Not Significant
3.	Distribution of patients based on genderv/s culture	Chi-square test	0.28	Not Significant
4.	Distribution of patients based on surgery v/s culture	Chi-square test	0.55	Not Significant
5	Distribution of patients based on antibiotic prophylaxis	Chi-square test	0.0004	Significant

DISCUSSIONS

- Orthopedic infection is defined as an infection of bones and joints leading to impaired mobility, complication to surgical procedures, increased morbidity, irreversible joint stiffness, permanent disability and even amputation. Therefore knowing the most common bacterial isolates of infection, determining their antimicrobial resistance pattern and associated factors will help to provide an

effective empiric antibiotic selection for patients until a final culture can be obtained and minimize on-going infection and boney destruction.

- In the present study, the overall prevalence of orthopedic infections was 59.5%. The findings from this study are higher than another study done in India. The high prevalence may be due to poor infection prevention, contamination of surgical instrument and number of personnel in the operating room. This study has lower prevalence compared to another study done in India 68%, the higher prevalence in the Indian study may be due to the specimen collected was from wound.
- In this study the prevalence of orthopaedic implant infections related are 7.4%,SSI are 9.9%,Fracture are 38.8%,PJI are 6.6%,synovitis and Hip Arthroplasty are 5.8%,Osteomyelitis are 10.7%,Septic Arthritis are 5.0%,Osteo Arthritis are 4.1%
- The increased prevalence in this study might be poor infection prevention measures and poor operation room ventilation. Implementing good infection prevention measures, decreasing operating room traffic and maintaining operating room air quality may help to minimize SSI in orthopedic surgeries in the future.
- Addressing the bacterial profile of orthopedic infections, the frequent bacterial isolates among orthopedic infections in this study were Klebsiella sps.(10.7%) ,S. aureus (24.0%), This is similar to a study in India with a prevalence of 25% and 20% respectively. However, a higher prevalence of *S. aureus*, 40%, 43.75%, isolates were reported by Lakshmi narayana, et al. and Valya B. This may be due to these bacteria arising from endogenous sources, the environment , surgical instruments, and healthcare workers. And 9.1% of patients are infected with Pseudomonas sps.,9.9% of patients are infected with E.coli,5.8 of patients are infected with Enterococcus sps.,0.8% of patients are infected with CoNs.
- Regarding antimicrobial susceptibility testing, the sensitivity level of S.aureus to vancomycin and clindamycin is high.
- In this study, K. pneumonia shows 100% resistance to ampicillin and Gentamycin, and in the Egyptian study, there was also a 100% resistance to Ampicillin but only 62.7% resistance to Gentamycin.A significant association between orthopedic infection and independent variables was not found. However, other similar studies found associated risk factors for older age, surgery, trauma and antibiotic prophylaxis.
- In this study, Staphylococcus aureus shows high sensitivity to linezolid and vancomycin. Staphylococcus aureus shows high resistance to cefoxitin and levofloxacin. Pseudomonas and Enterococcus species have shown more sensitive to gentamicin and less sensitive to clindamycin. E.coli is more sensitive to gentamicin and ampicillin and less sensitive to tobramycin .CoNS is sensitive linezolid and ceftriaxone. Pseudomonas and Enterococcus species have shown more resistance to ampicillin and less resistance to clindamycin. E.coli is more sensitive to gentamicin and ampicillin and less sensitive to tobramycin. CoNS is sensitive linezolid and ceftriaxone. E.coli is more resistance to ampicillin and ampicillin and less resistance to cephalosporins. CoNS is resistance to amikacin and gentamicin.
- In this the most frequently prescribed antibiotic therapy was ceftriaxone and vancomycin.

CONCLUSION

- In conclusion, the present study focused on orthopedic infections, which can have serious consequences, including impaired mobility, surgical complications, increased morbidity, joint stiffness, permanent disability, and even amputation. Understanding the bacterial isolates responsible for these infections, their antimicrobial resistance patterns, and associated factors is crucial for effective patient care, especially in cases where immediate treatment is needed before final culture results are available. The study revealed an overall prevalence of orthopedic infections at 59.5%, which was higher compared to some previous studies in India. This elevated prevalence may be attributed to factors such as poor infection prevention measures, contamination of surgical instruments, and a high number of personnel in the operating room.

- Specifically, the study found varying prevalence rates for different types of orthopedic infections
- Bacterial profiling identified Klebsiella spp. and Staphylococcus aureus as frequent isolates in orthopedic infections.
- The study highlighted the importance of conducting antimicrobial susceptibility testing to guide appropriate antibiotic therapy.
- Notably, Staphylococcus aureus exhibited high sensitivity to vancomycin and clindamycin, suggesting their effectiveness in treating infections caused by this bacterium. On the other hand, Klebsiella pneumonia showed resistance to ampicillin and gentamicin, emphasizing the need for alternative treatment options.
- In terms of antibiotic therapy, the most frequently prescribed antibiotics were ceftriaxone and vancomycin. This suggests that clinicians are aligning their treatment choices with the antimicrobial susceptibility patterns observed in the study In conclusion, this study contributes valuable insights into the prevalence, bacterial isolates, and antimicrobial resistance patterns of orthopedic infections.
- To improve patient outcomes, it is imperative to continue monitoring and adapting treatment strategies based on local resistance patterns and to implement stringent infection prevention measures in orthopedic surgical settings. Further research may help uncover additional risk factors and refine treatment guidelines for these challenging infections.

OUT COMES

- Orthopedic patient's susceptibility to infections were detected.
- Culture positive and culture negative cases were detected.
- Respective organism have been identified.
- Identified sensitive antibiotics.
- Helps to provide appropriate antibiotic therapy leading to prevention of antibiotics resistance.
- Analysis was done and character-able results were mentioned in percentage and frequency.

REFERENCES

ResearchGate. (2017). Prevalence of Surgical Site Infection in Orthopedics¬ Department: Study of 40 Cases at Tertiary Care Institute. [Online] Available at: https://www.researchgate.net/publication/318995265_Prevalence_of_Surgical_Site_Infection_in_Orthopedics_Department_Study_of_40_cases_at_Tertiary_Care_Institute [Accessed 5 September 2023]. Thirukumaran, C. P., Zaman, A., Rubery, P. T., Calabria, C., Li, Y., Ricciardi, B. F., ...¬ & Kautz, H. (2019). Natural language processing for the identification of surgical site infections in orthopaedics. The Journal of Bone and Joint Surgery. American Volume, 101(24), 2167. Elifranji, Z. O., Haddad, B., Salameh, A., Alzubaidi, S., Yousef, N., Al Nawaiseh, M.,¬ ... & Alshrouf, M. A. (2022). Microbiological profile and drug resistance analysis of postoperative infections following orthopaedic surgery: a 5-year retrospective review. Advances in Orthopaedics, 2022. Valya, B., Das, S. K., Kavya, T., Vidyasagar, V.,¬ & Begum, R. (2017). Antibiotic sensitivity and resistance pattern in orthopaedic infectious cases of a tertiary care teaching hospital. INTERNATIONAL JOURNAL OF LIFE SCIENCE AND PHARMA RESEARCH, 7(4), P24-29. Xie, B. L., Guo, R. S., Yang, X. W., Wan, L., Yao, W. Y., Lai, Q., ...¬ & Zhang, B. (2020). Epidemiology and drug resistance analysis of mixed infection in orthopaedic surgical sites. Surgical Infections, 21(5), 465-471. Taherpour, N., Mehrabi, Y., Seifi, A., Eshrati, B.,¬ & Hashemi Nazari, S. S. (2021). Epidemiologic characteristics of orthopedic surgical site infections and underreporting estimation of registries using capture-recapture analysis. BMC Infectious Diseases, 21(1), 1-7.