ORIGINAL RESEARCH PAPER

Volume-8 | Issue-1 | January-2019 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A STUDY OF CHRONIC OSTEOMYELITIS:

Orthopaedics

Dr Jalaluddeen MV Associate Professor, Department of Orthopedics, Kanachur Institute of Medical Sciences, Mangalore

Dr Sandeep Shibli* Assistant Professor, Department of Orthopedics, Kanachur Institute of Medical Sciences, Mangalore *Corresponding Author

ABSTRACT

Osteomyelitis is one of the most important causes of morbidity in our country. Advances in the identification of infections and early diagnosis of Osteomyelitis have led to the improved management of Osteomyelitis. This study was undertaken to determine the bacteriological profile of Osteomyelitis and the antibiotic resistance pattern of various isolates obtained as it is an important cause of morbidity. So, appropriate drug selected by antibiotic sensitivity testing should be used to treat Osteomyelitis.

KEYWORDS

Microbiological Profile, Osteomyelitis, antibiotic resistance, aetiology.

INTRODUCTION:

Infection of the bone is called as Osteomyelitis. It is also considered as inflammation of the bone caused by an infecting organism. It may be acute or chronic. The former is always caused by a trauma. Bone is considered very resistant to bacteria but events such as trauma, surgery, presence of foreign bodies, or prosthesis may disrupt bone integrity and lead to bone infections. Osteomyelitis can result from haematogenous spread after bacteriaemia.[1,2] When prosthetic joints are associated with infections, microorganism typically grow in biofilm, which protects bacteria from antimicrobial treatment and host immune response.[1] Early and specific treatment is important in Osteomyelitis and identification of the causative microorganism is essential for antibiotic therapy. The major cause of bone infections is staphylococcus aureus. Infections with an open fracture or associated with joint prosthesis and trauma require a combination of antimicrobial agents and surgery.[2] When bio-film – microorganism are involved as in joint prosthesis, a combination of rifampicin with other antibiotics may be necessary treatment.[3,4]

This study puts in an effort to find the most commonly involved organisms and also the sensitivity patters of the same.

Aims and objectives:

To find the most commonly involved organisms and also the sensitivity patters for better management.

MATERIALS AND METHODS:

This study was done in the Department of Orthopedics in Kanachur Institute of Medical Sciences, Mangalore.

This study was done from 2017 to 2018.

The samples were taken using swabs and transported to the Department of microbiology. The specimen were cultured and the sensitivity patterns were checked.

A total of 40 samples were taken that were available.

RESULTS:

Table 1: Age Distribution

Number	Mean age	Std Deviation
40	48.78 years	8.11 years

Table 2: Sex Distribution

Number	Male	Female
40	31	09

Table 3: Co-Morbidities:

Co-Morbidities:	Frequency
HTN	11
DM	07
DM and HTN	01
IHD	01

Table 4: Culture and sensitivity

Antibiotics	Organism													
	P	C	E	EC	PV	AB	EA	K	A	CK	CNS	ECS	SA	MRSA
Amikacin	8			3		1	2	3						
Gentamycin				4		1		3			8		2	
Ceftazidime	2							2					1	
Ciprofloxacin	2			1				3			9		1	
Norfloxacin								1						
Levofloxacin	4			1				2			5			
Trimethhoprim/Sulfamethoxozole	2										3			1
Piperacillin/Tozabactam	2					1	2	2						
Tigecycline				1			1				1		1	
Cefta						1					1			
Amoxiclav				1										
Doripenem	4			3			1	1					1	
Meropenem	4			3			3	4					1	
Clindamycin											2			
Linezolid											7		1	1
Teicoplanin											4			1
Vancomycin											3			1
Tetracycline											3			1
Oxacillin											1			
Ceftazidime	1							2						
Cefexime				1				2						
Cefoperazone/Sulbactam	1						2	2						
Cefepime	2			1				2						
ceftazidime								2						
Cefoxitin											3			
Cotrimoxasole											2		1	
Ampicillin/Sulbactam						1								
Doxycyclin											4		1	
Vancomycin											1			
Erythromycin											1			
Ofloxacin														

P - Pseudomonas aeruginosa
C- Candida tropicalis
E- Enterobacter cloacap ssp cloacae
EC- Escherichia coli
PV- Proteus vulgaris
AB- Acinetobacter baumannii
EA- Enterobacter aerogenes
KP- Klebsiella pneumoniz
A - Acinetobacter spp

CK- Candida Krusei
CNS - Coagulase negative Staphylococcus
ECS - Enterococcus spp

DISCUSSION:

Osteomyelitis remains a vexing illness despite major advances made in surgery and antimicrobial therapy. The advent of prosthetic joints has added new dimensions to the challenges of septic arthritis and Osteomyelitis as these are prone to become infected by a wide range of organisms including low grade pathogens.(1) Widespread use of antibiotics has altered aetiological pattern of infections and antibiotic susceptibility.

For gram negative organisms, cefoperazone-sulbactum combination was the most effective drug followed by amikacin. Ampicillin was found to be highly ineffective drug against gram negative infections with a wide range of resistance in Klebsiella spp and E. coli. Gentamycin once found to be most effective drug for the treatment of Osteomyelitis has now become a resistant drug in our study, gentamycin showed only a minimal sensitivity among gram negative isolates[4,5].

P. auruginosa was found to be highly resistant gram- negative organism with high resistance to gentamycin, ciprofloxacin and pipercillin, as high as respectively. In various studies investigating the resistance of P. aeruginosa to ciprofloxacin, the resistance was reported to be 0 to 89%. Multi-drug resistance among pathogenic organisms poses a major challenge in the treatment of infections and increase the morbidity and mortality associated with these infections[6-8]. A finding of greater concern is the progressively developing resistance to cefoparazone-sulbactum (beta-lactuam + beta-lactuamase inhibitor) combination among gram negative isolates since antibiotic of choice in the treatment of infections is very much limited.

CONCLUSION:

Most commonly involved organisms and also the sensitivity patters for better management of the patients in this part of the world have been obtained and reported.

REFERENCES:

1. Lang, S., Voolman, T. Infections. Part XII: Bone and Joint Infections. Curr Therapeutics 1991; 32 (10): 55-67.
2. Neu, H.C. Trends in the development of Beta-lactam antibiotics. Scand J Infect Dis 1984; 42 (Suppl): 7-16.
3. Price, M.F., Mollie, E.M., John, E.W. Prevalence of methicillin resistant Staphylococcus aureus in a Dermatology outpatient population. Southern Med J 1998: 91: 369-71.
4. Chaudhary, A., Kumar, A.G. In vitro activity of antimicrobial agents against oxacillin resistant Staphylococci with special reference to Staphylococcus haemolyticus. Ind J Med Micro 2007: 25 (1): 50-51.
5. Arora, S. Tyagi, S.C. Bacteriological studies in osteomyelitis. Ind J of Orthoped 1977: 11: 148-151.
6. Algun, U., Arisoy, A., Gunduz, T., Ozbakaloglu, O.Z. The resistance of Pseudomonas aeruginosa strains to fluoroquinolones group of antiubiotics. Ind J Med Microbiol 2004; 22 (2): 112-14.
7. Bhattacharya, A.N., Gupta, V. 1974: Changing bacterial pattern in orthopaedic infections. Ind J Orthopaedics 8: 34-38.
8. Dich, Q., Nelson, J.D., Haltalin, K.C. Osteomyelitis in infants and children. Am J Dis Child 1975; 129: 1273-1278.