

Prospective Analysis of Antibiotic Resistance among Skin Infections Caused By Pathogens among Community Acquired Group (Vs) Nosocomial Group

*M K Sundar Sri, *S Vasanth, Dr. C K Dhanapal¹, Dr. P K Kaviarasan²

**Doctor of pharmacy, Department of pharmacy, Annamalai University, Tamil nadu.*

¹Department Of Pharmacy, Annamalai University, Tamil nadu, India.

²Department of Dermatology at RMMCH, Annamalai University, Tamil nadu, India.

³Department Of Microbiology, Annamalai University, Tamil nadu, India.

**Corresponding Author: *M K Sundar Sri,*

ABSTRACT

BACKGROUND: prospective observation study of antibiotic resistance among skin infection caused by pathogens among two groups in dermatology department .the objective of the study to observe antibiotic resistance among skin infections caused by pathogens in patient .and the assess prevalence of drug resistance in community acquired group (vs.) nosocomial group

METHODS: And patient microscopy and bacterial cultures results will be collected. interpretation of results the study procedure was completely explained to patient and a patient consent form was collected from them .A detailed history regarding age, sex, occupation, social status, duration of complaints was taken in data collection form in skin infection caused by pathogens among community acquired group and nosocomial group of patient

RESULTS: In skin infection types incidence of the 40 cases studied impetigo 20% was the most commonest clinical type followed folliculitis (22%),furunculosis and bullous impetigo (10%) ecthyma(6%),infected scabies , erythrasma scyosissbarbae (5%), acuteparonychia, eczematous (3%),infected wound, periporitis, carbuncle (2%) and pitted keratolysis, jobs syndrome(1%).

The sex distribution showed male preponderance of 22 cases (55%) and female 18 cases (45%) with male, female ratio being less. In age distribution pathogens occurred most frequently among 11-30 years groups Streptococcus pyogens and staphylococcus aureus it's mostly infected in both nosocomial group and community acquired and antibiotic profile of micro organisms. around Chidambaram.

I. CONCLUSION

In the present study of antibiotic resistance among skin infection of the 40samples are processed and the organisms isolated staphylococcus aureus and beta –hemolytic streptococci Most of the cases occurred in the age group 11 to 30 years .there was female preponderance. Most of the cases were isolated from low socio economic group

The 40 cases of pathogens (90%)were primary and (10%)were secondary impetigo, folliculitis and furunculosis were common among the primary pathogens .infected scabies was common among secondary pathogens in the antibiotic susceptibility testing of staphylococcus aureus most of the strains were found to be susceptible to penicillin, cefotaxime, cephalexin, erythromycin and ciprofloxacin

And both community acquired group and nosocomial group infection similar treatment and antibiotic resistances. In part of mostly infected by staphylococcus aureus. In skin infection mostly caused in nosocomial group more than community acquired group of infection

II. INTRODUCTION

Skin infection one of the commonest clinical condition is defined as pyogenic infection of the skin and its appendage various factors contributory being-poverty. malnutrition, overcrowding, poor hygienic, low socio-economic state, climate conditions also play a key role with hot and rainy season being the period of maximum occurrence. Antibiotic resistant will kill the bacteria or stop them from replication. Allowing the body natural defenses to eliminate the pathogens

Pathogen infection are mainly due to staphylococci and streptococci strains. staphylococcus aureus being responsible for 18% of all nosocomial infection, causes 1/3 of post operative skin infections. its beta lactum group of drugs. penicillin, methicillin are treatment of these infection have become problematic . being noted etiologic agent of pyodermas and with the advent of drug resistant it is essential to know the correct etiology, antibiotic sensitivity pattern for treatment purpose and to prevention

III. MECHANISM

NUTRIENTS: Iron is required for, as well as the growth of most bacteria. To obtain free iron some pathogens secrete protein called siderophores. once the iron-siderophores complex is formed , it is taken up by receptors on the bacterial surface and then that iron is brought into the bacterium.

DIRECT DAMAGE: causes direct damage as the pathogens use the host cell for nutrients and produce waste products. as pathogens multiply. Some bacteria such as e.coli, shigella, salmonella, neisseria gonorrhea can induce in a process resembling phagocytosis.

TOXIN PRODUCTION: toxins are poisonous substance that are produced by certain microorganisms and are often the primary factor contributing to pathogenic properties of the micro organism.

ANTIBIOTIC SUSCEPTIBILITY TESTING:

1. Susceptibility and MICs were determined by disc diffusion method using muller hinton agar, Following the CSLI guidelines. Antibiotic discs were commercially obtained. Antibiotics used were Penicillin G (10 units), methicillin (5 ug), erythromycin (5 ug), gentamycin (10 ug), amikacin (30 ug), cephalexin (30 ug), ciprofloxacin (5 ug), vancomycin (30 ug).

2. SELECTIVE MEDIA USED FOR MRSA DETECTION :

- Mannitol salt agar to which is added 6mg/l oxacillin or 10mg/l of methicillin
- Methicillin agar –muller hinton agar containing 4% sodium chloride and 6mg/l oxacillin or 10mg/l methicillin {these plates were streaked by broth culture incubated at 35°C for 24 hrs –growth was observed with MRSA.

TABLE 1: MICRO-ORGANISM AND ANTIBIOTIC RESISTANCE AGENTS

MICRO ORGANISM	ABSOLUTE RESISTANCE
MRSA	Beta-lactams
Enterococcus sp.	Cephalosporin's, Ciprofloxacin, Erythromycin, Azithromycin.
Pseudomonas sp.	Ampicillin, Cefotaxime, Amoxicillin, Ceftriaxone
Proteus sp.	Nitrofurantoin
Gram-negative bacilli	Vancomycin, linezolid
Non culturable bacteria eg: mycoplasma	Beta-lactams, telcoplanin
Listeria monocytogenes	Cefotaxime
Aerobes	Metronidazole
Amp c producing bacteria	Ampicillin, Ceftazidime, Cefuroxime

IV. MATERIALS AND METHOD:

The study was conducted at Rajah Muthiah Medical College Hospital, Annamalai Nagar, Tamil Nadu. Which is 1260 bedded multi-specialty tertiary care teaching hospital from the period of 2016 to 2017. Its prospective observational study? the study method involves patient microscopy and bacterial cultures results will be collected. Interpretation of results.

Patient included in the study were selected based on inclusion and exclusion criteria

INCLUSION CRITERIA:

- Bacterial infection of all age group including pregnancy & lactation.
- Patient of both genders.

EXCLUSION CRITERIA:

- Unwilling patient
- Tested cases of pyoderma (in <15 days)

V. REPORT AND DISCUSSION:

TABLE 2: RELATION BETWEEN AGE AND GENDER

AGE GROUP	NO OF CASES		TOTAL
	MALES	FEMALE	
1-10years	2	NIL	2
11-30years	5	6	11
31-50years	8	NIL	8
51-60years	4	5	9
61-70years	3	6	9
71-80years	NIL	1	1
TOTAL	22	18	40

From our study the most affected were male 55 % and female 45% mainly in the age gap of 11-30years

TABLE 3: TYPES OF PATHOGENS

SL NO.	TYPES OF SKIN INFECTIONS	NO OF CASES	PERCENTAGE
1.	impetigo contagiosum	8	20%
2.	Bullous impetigo	3	10%
3.	Ecthyma	2	6%
4.	Folliculitis	9	22%
5.	Furunculosis	3	10%
6.	Carbuncle	1	2%
7.	Sycosisbarbae	2	5%
8.	Cellulites	1	3%
9.	Jobs syndrome	1	1%
10.	Acute paronychia	1	3%
11.	Erythrasma	2	5%
12.	Pitted keratolysis	1	1%
13.	Perioritis	1	2%
14.	Infected scabies	2	5%
15.	Infected wound	1	2%
16.	Infected eczematous dermatitis	2	3%

In skin infection types incidence of the 40 cases studied. In part of 25 patient in nosocomial infection (surgical, wound, infected) and 15 patient from community acquired infection.

TABLE 4: SUSCEPTIBILITY PATTERN OF STAPHYLOCOCCUS AUREUS AND STREPTOCOCCUS PHYOGENES

ANTIBIOTIC	POSITIVE STAPHYLOCOCCI	BETA HAEMOLYTIC STREPTOCOCCI
Penicillin	18.18%	62.96%
Ampicillin	21.73%	70.37%
Erythromycin	75.37%	92.59%
Gentamycin	44.93%	77.77%
Cefotaxime	86.95%	96.29%
Cephalexin	84.06%	88.88%
Ciprofloxacin	50.73%	85.18%
Amikacin	42.03%	51.85%
Tetracycline	62.31%	81.48%

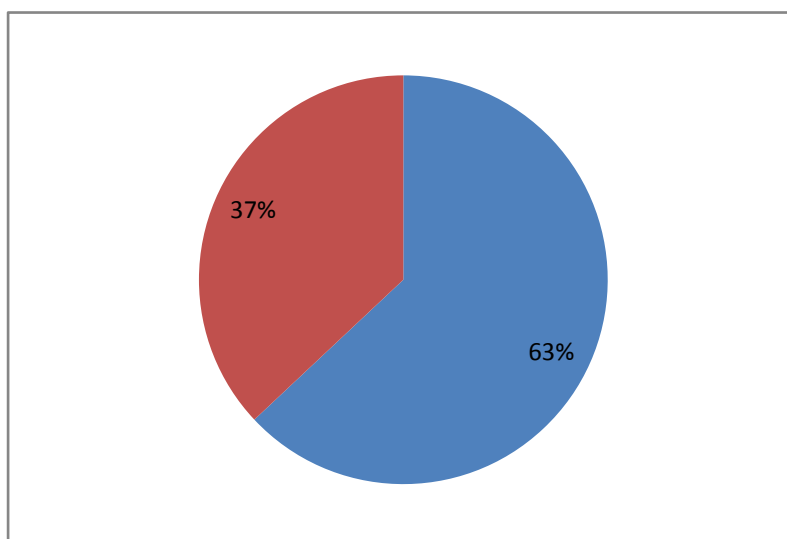
TABLE 5: RESISTANCE PATTERN OF STRAPHYLOCOCCUS ORGANISM

SL.NO	NAME OF THE ANTIBIOTIC	NO.OF ISOLATES	PERCENTAGE
1.	Penicillin	29	72.5%
2.	Amikacin	20	50.97%
3.	Gentamycin	19	47.5%
4.	Ciprofloxacin	17	42.57%
5.	Erythromycin	10	25.57%
6.	Methicillin	3	7.57%
7.	Vancomycin	1	2.55%

Some antibiotic resistance profile of staphylococcus aureus its showed highest resistance towards penicillin (72.5%) followed by amikacin (50.97%) Gentamycin (47.5%) ciprofloxacin(42.57%) erythromycin(25.57%) and lowest resistance towards cephalixin(7.57%)and vancomycin(2.55%)

FIGURE 1: COMMUNITY ACQUIRED INFECTION AND NASOCOMIAL INFECTION

-In community acquired group of infection {37% } and nosocomial group of infection {63% }



V. CONCLUSION

In the present study of antibiotic resistance among skin infection of the 40samples are processed and the organisms isolated staphylococcus aureus and beta –hemolytic streptococci

The predominant organism isolated was staphylococcus aureus (40%).there was no organism isolated from no sample probably due to adequate treatment taken by patient
Most of the cases occurred in the age group 11 to 30 years .there was female preponderance. Most of the cases were isolated from low socio economic group

The 40 cases of pathogens (90%)were primary and (10%)were secondary impetigo, folliculitis and furunculosis were common among the primary pathogens .infected scabies was common among secondary pathogens

In the antibiotic susceptibility testing of staphylococcus aureus most of the strains were found to be susceptible to penicillin, cefotaxime, cephalixin, erythromycin and ciprofloxacin

And both community acquired group and nosocomial group infection similar treatment and antibiotic resistances. In part of mostly infected by staphylococcus aureus. In skin infection mostly caused in nosocomial group more then community acquired group of infection

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****Corresponding Author: *M K Sundar Sri,***

****Doctor of pharmacy, Department of pharmacy, Annamalai University, Tamil nadu.***