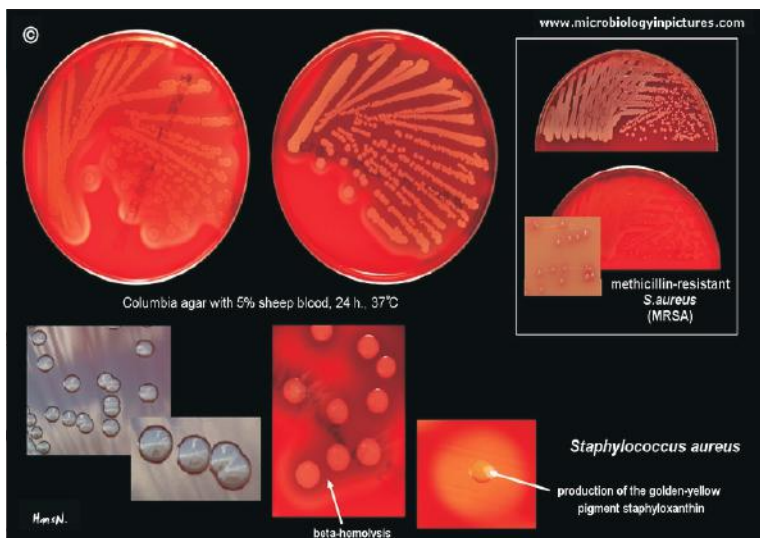


## PREVALENCE OF MULTI DRUG RESISTANT HOSPITAL ACQUIRED *STAPHYLOCOCCUS AUREUS* IN KURNOOL DISTRICT, ANDHRA PRADESH

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### ABSTRACT:

Resistance to multiple antibiotics among the *Staphylococcus* isolates in hospitals has been recognized as one of the major challenges in hospitals infection control. In the present investigation Multi drug resistance pattern of *S. aureus* isolated from hospitalized patents. Total ten antibiotics were used for the present study. The results obtained in the present study clearly demonstrated that *S. aureus* isolates obtained from different age groups highly resisted to penicillin G. Among ten antibiotics used in the present study amikacin was

considered as best drug for treatment of *S. aureus* infections.

### KEYWORDS:

Multi drug Resistance, *S. aureus*, Bacteria, Stafinfection.

### INTRODUCTION

The past few decades have seen an alarming increase in the prevalence of resistant antimicrobial pathogens in serious infections. In the USA, for instance, 50-60% of > 2 million nosocomial infections are caused by antibiotic – resistant pathogens. (Jones, 2001). *Staphylococcus aureus* is the major pathogen of the genus *Staphylococcus*. It may be found as commensals frequently on the skin of carrier without any infection. It is however an important pathogen which can be responsible for a great variety of pyogenic infections in man and animals. It is the causative agent of many suppurative processes ranging from localized abscesses which can occur any where of the body to fatal septicemias and Pneumonia (Pelczar *et al.*, 1986).

*Staphylococcus aureus* is a pathogen of greater concern because of its virulence (Chambers, 2005), its ability to cause a diverse array of life threatening infections, and its capacity to adept to different environment conditions (Lowy, 1998; 2003).The *Staphylococcus* appears to become drug resistant more readily than most other bacteria. By mind keeping the above literature the present investigation is aimed to evaluate multiple drug resistance pattern of *S. aureus* isolated from hospitalized different age group patents in Kurnool District.

### **MATERIALS & METHODS: COLLECTION OF SAMPLES**

A total of 1800 patients Pus samples collected from orthopedics and burns units of general hospitals and private hospitals and community laboratories located in Kurnool District were studied over a period of one year from September 2015 to August 2016. The samples were divided into four groups ascending to age of patients such as children ( 0-14 ) , Young Age (15-35 ) , middle age (35-50 ) and old age ( >50 ). The samples were inoculated on to Nutrient agar, Blood agar and Mac Conkeys agar plates.

The antibiotic susceptibility pattern of isolated *S.aureus* were determined by the modified Kirby – Bauer disk diffusion technique (Chees Brough, 2002)

### **RESULTS & DISCUSSION:**

The drug resistance patterns of *S.aureus* isolates from clinical samples were found to be highly variable. All most all the strains were resistant to Penicillin-G, Ampicillins, Tobramycin. However, all strains recorded sensitivity to Amikacin, Azithromycin, which was followed by to Ofloxacin, Levofloxacin, Gatifloxacin. In the present study clearly demonstrated that almost all *S.aureus* isolates showed resistance to all antibiotics. Among the antibiotics used in the present investigation (Table – 1) high percentage of resistance (97%) was recorded with pencillin –G while lowest percentage was recorded with Amikacin (25%) details furnished in Table – 2

*S.aureus*, a world wide pathogen whose natural reservoir is human causes severe infection of skin and soft tissues( Noble *et al*; 1967., Nord mann and Nass, 2005) and it is increasingly developing resistant to many antibiotics ( Lowy, 2003) . In present investigation the highest level of resistance was observed in Penicillin-G and Ampicillin in all age groups, which is in agreement with the repots of Umolu *et al* (2002) and Ehinmidu (2003). The indiscriminate use of antibiotics may be a cause for this multidrug resistance. Among ten drugs used in present study Amikacin is the best choice for treatment of *S.aureus* infection in all age groups. So in the present investigation the variation occurred in antibiotic sensitivity pattern of *S.aureus* confirmed the emergence of antibiotic resistance. The resistance in bacterial pathogens to antibiotics increased the chance of severe infections in human beings. The data indicated that among ten antibiotics used in present study. Amikacin and Azithromycin should be the drugs of choice to treat *S.aureus* infections. For proper treatment, physician should perform the antibiotic sensitivity test before antibiotic treatment.

### **CONCLUSION:**

The present study may be concluded that the *S.aureus* isolated from the pus samples of hospitalized patients in Kurnool district are resistant to almost all antibiotics so for proper treatment physicians should perform the sensitivity test before prescribe an antibiotic.

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**Table. 1: Concentration of the Antibiotic Drugs**

S.No	Antibiotic Disk	Quantity (mcg/disc)
1	Amikacin (Ak)	30
2	Ciprofloxacin (Cf)	10
3	Levofloxacin (Le)	05
4	Gatifloxacin (Gf)	10
5	Ofloxacin (Of)	05
6	Penicillin- G (P)	10
7	Ampicillin (A)	10
8	Azithromycin (Az)	15
9	Vancomycin (Va)	30
10	Tobramycin (Tb)	10

**Table. 2: Antibiotic resistance pattern of S. aureus isolated from pus samples of hospitalized patients in Kavali Area.**

S.No	Name of Antibiotic	Resistance %			
		0-14	15-35	35-50	>50
1	Amikacin (Ak)	25	30	42	65
2	Ciprofloxacin (Cf)	60	55	58	76
3	Levofloxacin (Le)	40	48	52	67
4	Gatifloxacin (Gf)	35	54	58	72
5	Ofloxacin (Of)	46	40	44	68
6	Penicillin- G (P)	85	91	94	95
7	Ampicillin (A)	80	89	84	90
8	Azithromycin (Az)	45	34	38	55
9	Vancomycin (Va)	55	60	64	78
10	Tobramycin (Tb)	78	80	82	85