Outcome and attributable cost associated with bacterial resistant infections in a tertiary care hospital

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Supplementary file

E.coli were highly resistant to third-generation cephalosporins (87%-91%) and FQs (83%-85%) and moderately resistant to tigecycline (52%), TMP-SMX (trimethoprim-sulphamethoxazole)(52%), amoxicillin-clavulanic acid (71%) and fourth-generation cephalosporins (73%) (figure 1).

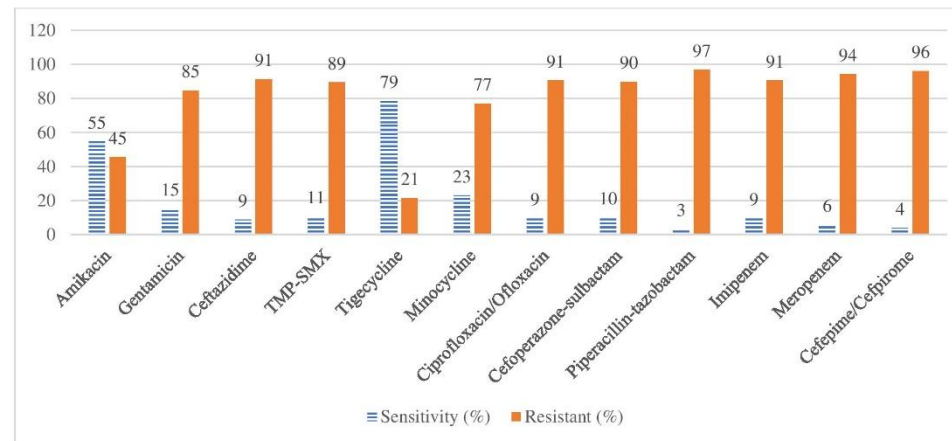**Figure 1. Susceptibility pattern of *E. coli* (n=507)**
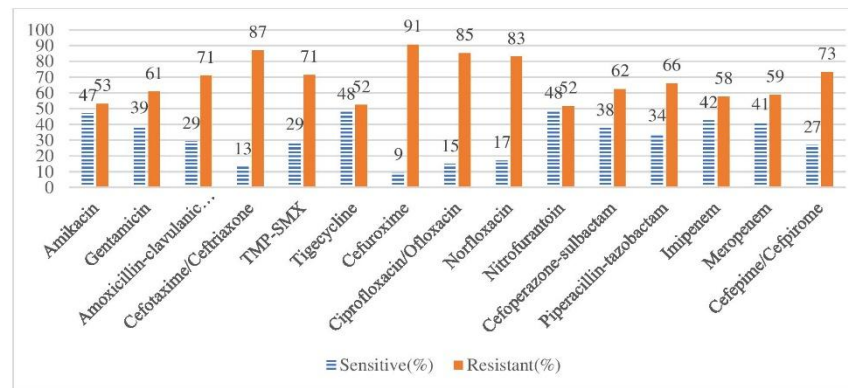
Klebsiella spp. were highly resistant to fluoroquinolones (72%-78%) third-generation cephalosporins (74%-77%), fourth-generation cephalosporins (80%), piperacillin-tazobactam (79%) and nitrofurantoin (94%) and moderately resistant to aminoglycosides (60%-62%), tigecycline (66%) and carbapenems (71%-74) (figure 2).

**Figure 2. Susceptibility pattern of *Klebsiella* spp. (n=381)**
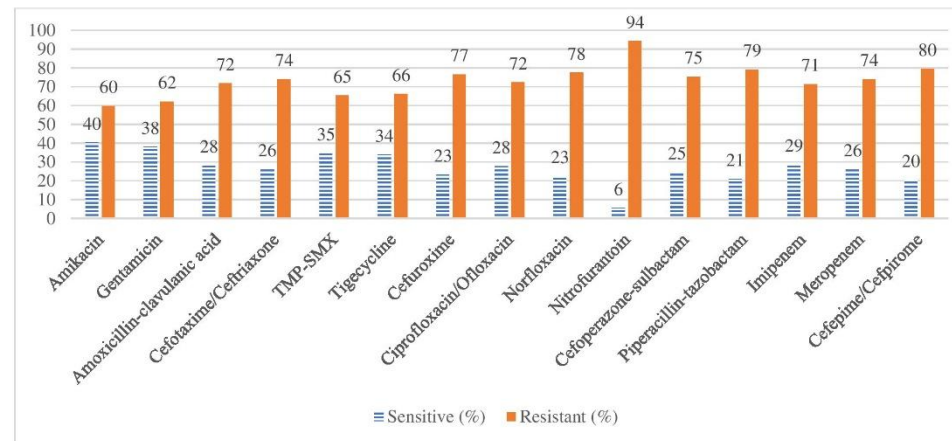
Acinetobacter spp. were highly resistant to TMP-SMX (89%), β-lactam/β-lactamases inhibitors (90%-97%), carbapenems (91%-94%), fluoroquinolones (91%), third and fourth- generation cephalosporins (91%-96%) and gentamicin (85%) (figure 3).

Figure 3. Susceptibility pattern of *Acinetobacter* spp. (n=140)

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Pseudomonas spp. were found highly resistant to β-lactam/β-lactamases inhibitors (73%-100%), tigecycline (80%) and carbapenems (76%) (figure 4)

Figure 4. Susceptibility pattern of *Pseudomonas* spp. (n=111)
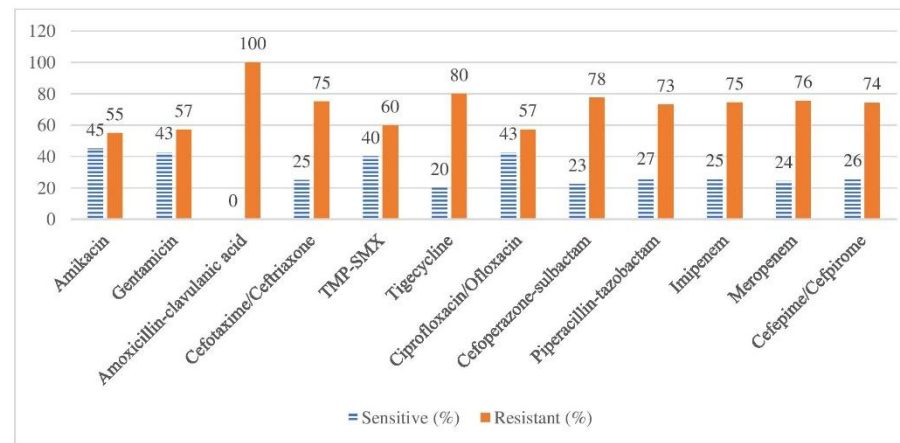
Enterococci spp. were found highly resistant to third-generation cephalosporins (100%), TMP-SMX (100%), fluoroquinolones (82%) and moderately resistant to gentamicin (70%), tetracyclines (71%), benzylpenicillin (63%) (figure 5).

Figure 5. Susceptibility pattern of *Enterococci* spp. (n=97)
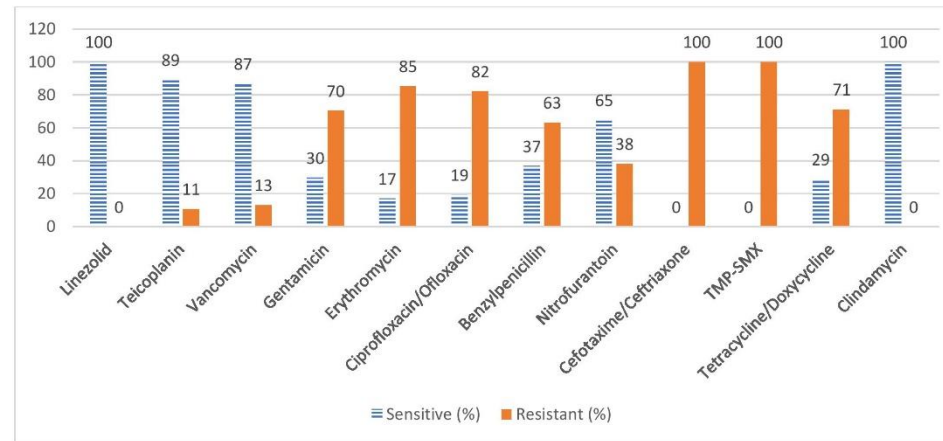
MRSA was highly resistant to fluoroquinolones (96%), erythromycin (82%) and benzylpenicillin (100%), whereas they were moderately resistant to third-generation cephalosporins (67%) and cloxacillin (70%) (figure 6). Among the isolates of *S. aureus* (n=216), 36% of isolates were methicillin-susceptible Staphylococcus aureus (MSSA). Amongst them, seventy-four percent and 24% of the MRSA isolates were community-acquired (*CA-MRSA*) and hospital-acquired (*HA-MRSA*), respectively.

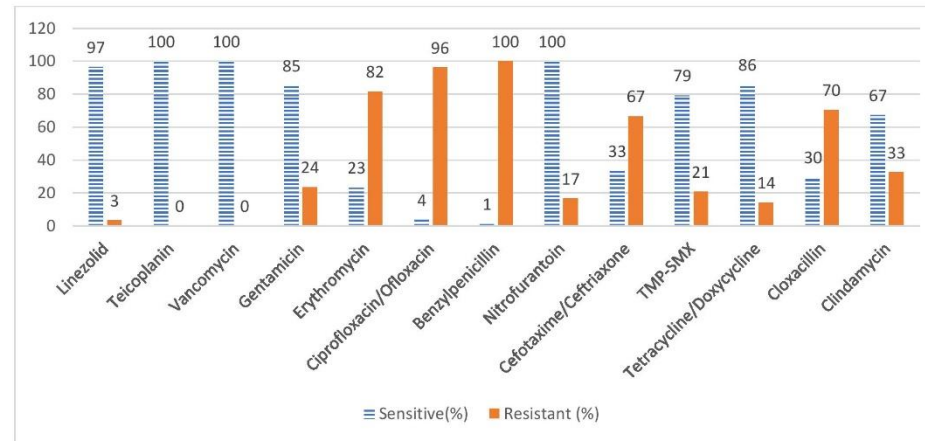**Figure 6. Susceptibility pattern of *MRSA* (n=139)**

Table 1. Different class of antibiotics (%) used in the study

	Pen+/-βLI	Cephalo +/- βLI	Lmc	Nmz	Carba	Mld	Glp	FQ	Carbo	Tcl	AG	Pmx	Gcl	Lzd	TMP-SMX
Empirical therapy	56	46	18	13	11	7	6	5	-	5	-	-	-	-	-
Definitive therapy	50	54	20	11	29	13	14	11	6	7	11	8	7	5	4

Pen= Penicillins Cephalo= Cephalosporins βLI= β-lactamase inhibitors Lmc= Lincomycins Nmz= Nitroimidazoles Carba= Carbapenems Mld= Macrolides Glp= Glycopeptides FQ= Flouroquinolones Carbo= Carbomycins Tcl= tetracyclines AG= Aminiglycosides Pmx= Polymyxins Gcl= Glycylcyclies Lzd= Linezolid TMP-SMX= Trimethoprim-Sulphamethoxazole

Table 2a. shows the bacterial isolates present in mortal patients

Bacterial isolates	S (n)	Resistant (MDR + XDR + PDR) (n)	Total (n)
Acinetobacter spp.	2	36	38
E. coli	6	62	68
Klebsiella spp.	19	42	61
Enterococcus spp.	4	22	26
MRSA	5	12	17
Pseudomonas spp.	5	7	12

spp.= species, MDR = multidrug-resistant, XDR = extensive drug-resistant, PDR = pandrug-resistant, n= number of isolates, *MRSA = Methicillin-resistant Staphylococcus aureus*

Table 2b. Different types of infection found in mortal patients

Types of infections	Mortality (%)
CAIs	12
HAIs	24
Both CAIs + HAIs	25
Mono-infections	68
Bi-infections	22
Polymicrobial infections	10
Mixed infections	17

CAIs= Community-acquired infections, HAIs= Hospital-acquired infections

Figure 7a. Scatterplot (indicating the model fit) Predicted value (X-axis) vs residual value (Y-axis)

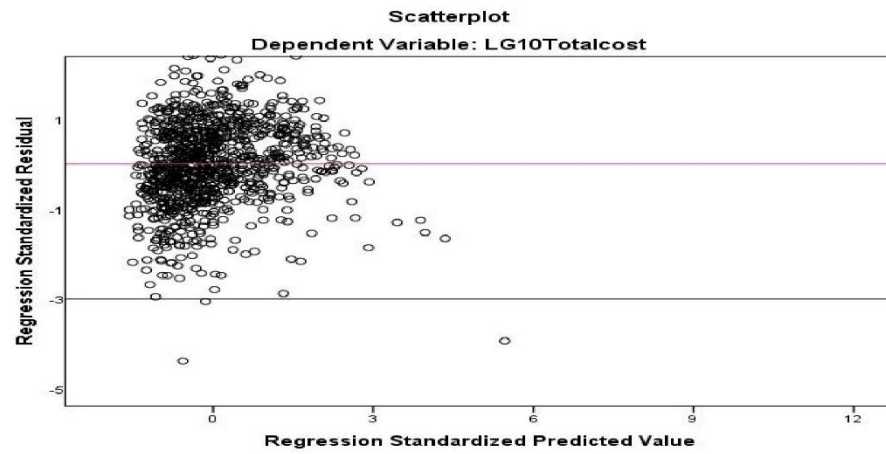Scatterplot
Dependent Variable: LG10Totalcost

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Figure 7b. Scatterplot Clinical diagnoses-Predicted value (X-axis) vs residual value (Y-axis)

Scatterplot
Dependent Variable: LG10Totalcost

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