

Table (1) Fluroquinolones susceptibility of *S. pneumoniae*.

Variable	MIC(ug/dl)	no (%)
	Resistant ≥ 4	35(44.9%)
Ciprofloxacin (1 st generation Fluoroquinolone)	Intermediate 2	9(11.5%)
	Susceptible ≤ 1	34 (43.6%)
Levofloxacin (2 nd generation Fluoroquinolone)	Intermediate 4	7(9%)
	Susceptible ≤ 2	38(48.7%)
Gatifloxacin (3 rd generation Fluoroquinolone)	Resistant ≥ 4	36(46.1%)
	Intermediate 2	8(10.3%)
	Susceptible ≤ 1	34 (43.6%)
	Resistant ≥ 4	36(46.2%)
Moxifloxacin (4 th generation Fluoroquinolone)	Intermediate 2	6(7.6%)
	Susceptible ≤ 1	36(46.2%)

I. Sequencing of the Quinolone Resistance-Determining(ORDRs).

Table (2) Percent and types of the 41 Fluroquinolones-resistant *S. pneumoniae* isolates with resistance-associated QRDR substitutions.

Variable		no (%)
	Glu85Lys	1 (2.4%)
GyrA	Ser81Phe	13 (31.7%)
	Ser81Tyr	5 (12.2%)
ParE	Asp435Asn	6 (14.6%)
	Glu407Lys	2(4.9%)

Table 3 show percentage of genes mutations in each antibiotic of Fluroquinolones-resistant *S. pneumoniae*

Variable	Gyr A	Par E
Ciprofloxacin	18(56.3%)	8(25%)
Levofloxacin	18(56.3%)	8(25%)
Gatifloxacin	18(56.3%)	8(25%)
Moxifloxacin	18(56.3%)	8(25%)

Table (4) Ciprofloxacin MICs and substitutions observed in GyrA and ParE in ciprofloxacin-resistant and intermediate *S. pneumoniae* isolates.

Variable(MIC)	2	4	8	16
GyrA				
No substitution	3 (75%)	5 (55.6%)	3 (33.3%)	3 (30%)
Glu85Lys	0 (0%)	0 (0%)	0 (0%)	1(10%)
Ser81Phe	1 (25%)	3 (33.1%)	6 (66.7%)	3 (30%)
Ser81Tyr	0 (0%)	1 (11.1%)	0 (0%)	3 (30%)
Par E				
No substitution	2 (50%)	6 (66.7%)	7 (77.8%)	9 (90%)
Asp435Asn	1 (25%)	2 (22.2%)	2 (22.2%)	1 (10%)
Glu407Lys	1 (25%)	1 (11.1%)	0 (0%)	0 (0%)

Table (5) Levofloxacin MICs and substitutions observed in GyrA and ParE in ciprofloxacin-resistant and intermediate *S. pneumoniae* isolates.

Variable(MIC)	4	8	16
GyrA			
No substitution	4 (100%)	7 (53.8%)	3 (21.4%)
Glu85Lys	0 (0%)	1 (7.7%)	0 (0%)
Ser81Phe	0 (0%)	4 (30.8%)	8 (57.2%)
Ser81Tyr	0 (0%)	1 (7.7%)	3 (21.4%)
Par E			
No substitution	2 (50%)	9 (69.2%)	12 (85.7%)
Asp435Asn	1 (25%)	3 (23.1%)	2 (14.3%)
Glu407Lys	1 (25%)	1 (7.7%)	0 (0%)

Table (6) Gatifloxacin MICs and substitutions observed in GyrA and ParE in ciprofloxacin-resistant and intermediate *S. pneumoniae* isolates

Variable(MIC)	2	4	8	16
GyrA				
No substitution	3 (75%)	4 (66.6%)	5 (41.7%)	1 (11.1%)
Glu85Lys	0 (0%)	0 (0%)	0 (0%)	1 (11.1%)
Ser81Phe	1 (25%)	1 (16.7%)	6 (50%)	4 (44.5%)
Ser81Tyr	0 (0%)	1 (16.7%)	1 (8.3%)	3 (33.3%)
Par E				
No substitution	3 (75%)	5 (83.3%)	8 (66.7%)	7 (77.8%)
Asp435Asn	0 (0%)	1 (16.7%)	4 (33.3%)	1 (11.1%)
Glu407Lys	1 (25%)	0 (0%)	0 (0%)	1 (11.1%)

Table (7) Moxifloxacin MICs and substitutions observed in GyrA and ParE in ciprofloxacin-resistant and intermediate *S. pneumoniae* isolates

Variable(MIC)	2	4	8	16
GyrA				
No substitution	2 (50%)	5 (55.6%)	4 (40%)	2 (25%)
Glu85Lys	0 (0%)	1 (11.1%)	0 (0%)	0 (0%)
Ser81Phe	1 (25%)	3 (33.3%)	3 (30%)	5 (62.5%)
Ser81Tyr	1 (25%)	0 (0%)	3 (30%)	1 (12.5%)
Par E				
No substitution	3 (75%)	6 (66.7%)	8 (80%)	6 (75%)
Asp435Asn	1 (25%)	2 (22.2%)	1 (10%)	2 (25%)
Glu407Lys	0 (0%)	1 (11.1%)	1 (10%)	0 (0%)

