Effect of some efflux pump inhibitors on the resistance of some Escherichia Coli strains to some antimicrobial agents.

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Abstract:

Background: The efflux pumps are one of the main mechanisms of the antibiotic resistance in Escherichia coli. The efflux pump inhibitors (chlorpromazine and omeprazole) were tested for their effect on the antibiotic resistance by inhibiting efflux pump activity. Objective: The present study aims to estimate the effect of some efflux pump inhibitors on the antibiotic resistance of some Escherichia coli isolates. Methodology: A total of 100 isolates of Escherichia coli were studied for antibacterial susceptibility pattern by disk diffusion method with and without efflux pump inhibitors chlorpromazine (25 µg) and omeprazole (100 µg), determination of the MIC of amikacin and gentamicin on 60 E.coli resistant isolates, the effect of the efflux pump inhibitors on the MIC of amikacin and gentamicin and PCR amplification of the efflux pump genes AcrD and MdfA genes. Results: The difference between all tested antibiotics in the change of resistance to totally sensitive E.coli isolates after addition of CPZ and OMP by disk diffusion method were statistically highly significant (p value 0.05). PCR detection of efflux pump genes detected a high level of AcrD gene detection than MdfA gene (p value

Keywords:

E.coli, EPI, CPZ, OMP, MIC, PCR

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