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Detection Of Acrab Efflux Pumps Gene, Biofilm Formation In Escherichia Coli And Klebsiella Pneumonia Isolated From Pregnant Women Suffered Of Urinary Tract Infections And Diabetes Mellitus In Basrah City, Iraq

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Abstract
Generally, the incidence of multidrug-resistant of both Escherichia coli and Klebsiellapneumonia has increased among urinary tract infectionsin recent years. The purpose of the present study is to investigate the prevalence of 2 groups of efflux pump genes amongE.coliand K.pneumoniaisolates.E.coli and K.pneumonia were isolated from100 urine samples collected from Pregnant women suffered from UTIs and Diabetes mellitus,conventional bacteriology tests and confirmed by specific 16SrDNA primers.Using polymerase chain reaction efflux pump genes have been investigated. The 96-well polystyrene micro-titer plate method and the tube method were used to investigate biofilm formation. In total, 21(51%) E. coli, 8(20%) K.pneumonia isolates. All isolates were resistant to ampicillin, piperacillin and ticarcillin, expect 3 isolates of E.coli were sensitive to antibiotics susceptibility. 14 (78%) E. coli isolates were multidrug-resistant, 4(50%) K. pneumonia were MDR. On the other hands, AcrA and AcrBefflux pump genes frequency ranges from 78% in E. coli and 50% in K. pneumonia. The results of biofilm formation showed that 15 (83%) of E.coliisolates wereformed biofilm, 3(17%) were non-biofilm forming. 13(86%) was weak biofilm,1 (7%) was moderate, and1(7%) was strong biofilm formation. 4(50%) of K.pneumonia isolates were biofilm formation, 4(50%) of K. pneumonia isolates were non-biofilm formation. 4(100%) K. pneumonia isolates were weak biofilm.Furthermore, a strong correlation was found between the presence of study pumps and the production of biofilm.

Keywords: AcrAB Efflux pumps, Biofilm formation,E. coli, K. Pneumonia, UTIs, Diabetes Mellitus.

1. Introduction

Urinary tract infections are common and widespread in pregnancy period, that consequently led to complications and vitally threat the health of both the pregnant womenand fetus if left untreated [1]. Interestingly, Gram negative bacteria are considered the vital reasonsfor UTIs with approximately75% of the total UTIs in comparison with both Gram-positive bacteria and fungi that recorded less than 25%. Moreover, Enterobacteriaceae are recorded as the predominant type of bacteria that is associated with UTI,where uropathogenicE.coliis responsible for 80-90% of all infections [2, 3].In 2017, hyperglycemia in pregnant women has a dramatic influence that threat the life of both the woman and the newborn together [4]. UTIs in pregnant women with diabetes mellitus are defined as one of the common observed maternalinfections not only because of the physiological and anatomical changes observed in the pregnant rental tractor that predispose them to bacteriuria, but also because of the immune system suppression that linked with diabetes mellitus that consequentlyenhance the development of acute cystitis to acute pyelonephritis and renal abscess [5].