



THE BULLETIN OF THE SRI LANKA COLLEGE OF MICROBIOLOGISTS

INTERNATIONAL CONFERENCE ON INFECTIOUS DISEASES AND ANTIMICROBIAL RESISTANCE "COMMUNICATION AND COLLABORATION FOR CLINICAL EXCELLENCE"

08 - 11 AUGUST, 2018,
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VOL 16 | AUGUST 2018 | ISSN 1391-930X



ORAL PRESENTATIONS

OP 1

The role of ERG 11 gene expression for fluconazole resistance among *Candida albicans* isolates, isolated from candidaemia patients

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Introduction

Candida is the commonest cause of fungaemia which is often treated with fluconazole. Therefore fluconazole resistance is becoming a problem to clinicians. Several antifungal resistance mechanisms have been suggested including changes in the target enzyme and the up regulation of multidrug resistance protein (MDR) by *Candida* species. Lanosterol 14 α -demethylase enzyme is an essential enzyme in synthesis of ergosterol and is the target of azole group of drugs. This study investigated the role of ERG 11 gene expression in *C. albicans* using a real time PCR.

Objective

To analyze the association between ERG gene expression levels and fluconazole resistance among clinical isolates of *C. albicans*.

Methodology

ERG gene expression analysis was performed using 20 *C. albicans* isolates, isolated from candidaemia patients. These included 10 fluconazole resistant isolates and 10 fluconazole sensitive isolates confirmed by antifungal susceptibility testing using CLSI disk diffusion method. Total RNA were extracted and cDNA was synthesized using high capacity cDNA synthesis kit (Applied Biosystems, USA). After quantification using Nano Drop, cDNA was subjected to real time PCR using 18 S as a control gene using Sybr Green chemistry.

Results

Relative gene expression levels of ERG 11 gene ranged between 0.055 - 2.439 among fluconazole resistant isolates and 0.032 - 2.19 among fluconazole sensitive isolates. Highest value (2.493) of relative expression of ERG 11 gene was observed in one isolate which was also resistant to fluconazole.

Among fluconazole sensitive isolates relative gene expression was higher for strains with <30mm zone diameter against fluconazole compared to those with 40mm. Higher median value of relative gene expression was observed among the fluconazole resistant isolates compared to sensitive isolates.

An average relative ERG 11 gene expression level of 1.014 was observed among the fluconazole resistant isolates while sensitive isolates had an average relative expression of 1.031 compared to *C. albicans* ATCC® 10231 reference strain.

Conclusion

Significant difference of relative ERG expression was not observed among the fluconazole sensitive and resistant groups of *C. albicans*.

OP 2

Presence and phenotypic detection of AmpC Beta-lactamase producers among clinical isolates of Enterobacteriaceae in National Hospital of Sri Lanka

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Introduction

Plasmid-mediated AmpC beta lactamases which are derived from chromosomally encoded genes in *Enterobacteriaceae* have been described in certain bacterial species like *E. coli*, *K. pneumoniae* and *Proteus mirabilis*. They can confer resistance to penicillins, narrow-spectrum cephalosporins, oxyimino-beta-lactams, and cephamycin. They lack susceptibility to beta-lactamase inhibitors such as clavulanic acid, sulbactam, and tazobactam.

Objectives

To assess the rate of positivity of AmpC beta-lactamase producers among clinical isolates of *Enterobacteriaceae* in National Hospital of Sri Lanka, to assess the AmpC, ESBL co-existence and to compare the phenotypic methods for AmpC detection.