

P1206 **Virulence genes and biofilm production among *Candida* spp. isolated from blood culture**

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Background: The aim of this study was to investigate the virulence genes such as agglutinin-like sequence 1 and 3 (*ALS1* and *ALS3*), hyphal wall protein 1 (*HWP1*), 1,3-beta-glucan synthase (*FKS1*), GPI-anchored protein 10 (*PGA10*), biofilm and cell wall regulator 1 (*BCR1*), enhanced filamentous growth protein 1 (*EFG1*) in biofilm-forming and non-biofilm-forming *C. albicans*, *C. parapsilosis*, *C. tropicalis*, *C. krusei* and *C. glabrata* isolated from blood culture.

Materials/methods: *Candida* spp. isolated from blood culture were evaluated for the carriage of genes *ALS1*, *ALS3*, *HWP1*, *FKS1*, *PGA10*, *BCR1* and *EFG1* by multiplex PCR. All nucleotide sequences were taken from database GeneBank and aligned using the ClustalW program. Biofilm production (BP) was classified as biofilm-forming (optical density (OD)_≥0.1) and non-biofilm-forming (OD<0.1), according to the XTT reduction assay.

Results: A total of 109 *Candida* isolates (*C. albicans* n = 22, *C. parapsilosis* n = 22, *C. tropicalis* n = 22, *C. krusei* n = 21 and *C. glabrata* n = 22) were evaluated. The genes were determined in all isolates of *Candida* spp. The rate of genes in various *Candida* spp. ranged from 4.5% to 100%. BP was observed for 59 (54%) *Candida* isolates, of which 18 (82%) were *C. tropicalis*, followed by 17 (81%) *C. krusei*, 11 (50%) *C. parapsilosis*, 7 (32%) *C. albicans* and 6 (27%) *C. glabrata*. Gene *EFG1* predominated among biofilm-forming *Candida* spp. compared to non-biofilm-forming *Candida* spp. (66% vs 42%, p=0.01), Table. Gene *FKS1* prevailed in non-biofilm-forming *Candida* spp. compared to biofilm-forming *Candida* spp. (92% vs 61%, p<0.001).

Conclusions: The presence of virulence genes differs in biofilm-forming and non-biofilm-forming *Candida* spp. isolated from blood culture. It can be supposed that gene *EFG1* prevailed in biofilm-forming *Candida* spp. whereas gene *FKS1* dominated in non-biofilm-forming *Candida* spp.

Table. The presence of virulence genes in biofilm-forming (OD_≥0.1) and non-biofilm-forming (OD<0.1) *Candida* spp. isolated from blood culture

| | n (%) | <i>ALS3</i> , n(%) | <i>HWP1</i> , n(%) | <i>FKS1</i> , n(%) | <i>PGA10</i> , n(%) | <i>BCR1</i> , n(%) | <i>EFG1</i> , n(%) | <i>ALS1</i> , n(%) |
|---------------------|--------|-----------------------|-----------------------|-----------------------|------------------------|-----------------------|-----------------------|-----------------------|
| OD _≥ 0.1 | 59(54) | 17(29) | 19(32) | 36(61) | 24(41) | 13(22) | 39(66) | 16(27) |
| OD<0.1 | 50(46) | 18(36) | 8(16) | 46(92) | 25(50) | 17(34) | 21(42) | 17(34) |
| | | | | p<0.001 | | | p=0.01 | |