

Publication

β-glucan antigenemia anticipates diagnosis of blood culture-negative intraabdominal candidiasis

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Author(s) Tissot, Frederic; Lamothe, Frederic; Hauser, Philippe M.; Orasch, Christina; Flückiger, Ursula; Siegemund, Martin; Zimmerli, Stefan; Calandra, Thierry; Bille, Jacques; Eggimann, Philippe; Marchetti, Oscar; Fungal Infection Network of Switzerland,

Author(s) at UniBasel [Siegemund, Martin](#) ;

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Life-threatening intraabdominal candidiasis (IAC) occurs in 30 to 40% of high-risk surgical intensive care unit (ICU) patients. Although early IAC diagnosis is crucial, blood cultures are negative, and the role of Candida score/colonization indexes is not established.; The aim of this prospective Fungal Infection Network of Switzerland (FUNGINOS) cohort study was to assess accuracy of 1,3- β -d-glucan (BG) antigenemia for diagnosis of IAC.; Four hundred thirty-four consecutive adults with abdominal surgery or acute pancreatitis and ICU stay 72 hours or longer were screened: 89 (20.5%) at high risk for IAC were studied (68 recurrent gastrointestinal tract perforation, 21 acute necrotizing pancreatitis). Diagnostic accuracy of serum BG (Fungitell), Candida score, and colonization indexes was compared.; Fifty-eight of 89 (65%) patients were colonized by Candida; 29 of 89 (33%) presented IAC (27 of 29 with negative blood cultures). Nine hundred twenty-one sera were analyzed (9/patient): median BG was 253 pg/ml (46-9,557) in IAC versus 99 pg/ml (8-440) in colonization ($P > 0.01$). Sensitivity and specificity of two consecutive BG measurements greater than or equal to 80 pg/ml were 65 and 78%, respectively. In recurrent gastrointestinal tract perforation it was 75 and 77% versus 90 and 38% (Candida score ≥ 3), 79 and 34% (colonization index ≥ 0.5), and 54 and 63% (corrected colonization index ≥ 0.4), respectively. BG positivity anticipated IAC diagnosis (5 d) and antifungal therapy (6 d). Severe sepsis/septic shock and death occurred in 10 of 11 (91%) and 4 of 11 (36%) patients with BG 400 pg/ml or more versus 5 of 18 (28%, $P = 0.002$) and 1 of 18 (6%, $P = 0.05$) with BG measurement less than 400 pg/ml. β -Glucan decreased in IAC responding to therapy and increased in nonresponse.; BG antigenemia is superior to Candida score and colonization indexes and anticipates diagnosis of blood culture-negative IAC. This proof-of-concept observation in strictly selected high-risk surgical ICU patients deserves investigation of BG-driven preemptive therapy.

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