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Abstract (oral session)

Does performing DNA detection in blood improve the microbial diagnosis of severe infections? First results of the EVAMICA study

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Objectives: to improve microbial diagnosis of severe infections since only one third of them are documented with detection of bacteria or fungi in blood cultures (BC). Detection of bacterial and fungi DNA in the blood, such as the SeptiFast LightCycler test (SF) was shown to increase recovery rate in bloodstream infections. **Methods:** we conducted a randomized multicenter prospective study with two consecutive 6 month periods when the SF test was performed (SF period) or not performed (nonSF period) at the onset of severe infections, namely severe sepsis (SS), first episode of febrile neutropenia (FEFN) and suspicion of endocarditis (SIE). **Results:** Investigators from 18 hospitals included 1416 patients (907 SS, 440 FEFN and 69 SIE) of whom 684 were in the SF period and 732 were in the nonSF period. Overall, microbes were detected in blood (BC positive and/or SF positive) for 286 (39.1%) patients in the SF period and 194 (28.4%) in the nonSF (p-value <0.001). The higher microbial detection in blood during the SF period was markedly observed for the cases of severe sepsis with 198/465 (42.6%) patients in the SF period and 125/442 (28.3%) in the nonSF period (p-value <0.001), but not in FEFN patients with 70/218 (32.1%) positive in the SF period and 68/222 (30.6%) in the nonSF period (p-value of 0.74). Although only 69 patients were included for SIE, there were more patients with microbial diagnosis in the SF period (18/49, 36.7%) than in the nonSF period (1/20, 5%) (p-value of 0.007). Patient characteristics were comparable between the two periods. In the multivariate analysis adjusted for centre and factors which differed between both populations of SS (SF and nonSF periods), namely nosocomial infection, severity of the disease and the infection site, the SF period was associated with a significant increase of microbial documentation (aOR=1.83, 95% CI 1.32-2.53, P<0.001). **Conclusions:** In the period when performing the SF test, microbial diagnosis rate was higher than in the control period for severe sepsis but not for FEFN. Results in EI need to be confirmed at a larger scale. Registered in Clinical trials number IC0703; P070308 & IDRCB 2007-A01443-50 Funded by Ministry of Health, Hospital Department, APHP