

P2378 Implementation of a two-step quality of care bundle for the management of *Staphylococcus aureus* bacteraemia: a quasi-experimental *pre-post* study

Sara Tedeschi¹, Ilaria Contadini¹, Filippo Trapani¹, Eugenia Francalanci¹, Francesca Volpato¹, Riccardo Scotto², Michele Bartoletti¹, Fabio Tumietto¹, Francesco Cristini¹, Caterina Campoli¹, Renato Pascale¹, Simone Ambretti³, Maddalena Giannella¹, Pierluigi Viale¹

¹ Infectious Disease Unit, Policlinico S. Orsola - Malpighi, Bologna, Italy, ² Università degli Studi di Napoli Federico II, Napoli, Italy, ³ Microbiology, Policlinico S. Orsola - Malpighi, Bologna, Italy

Background: *Staphylococcus aureus* bacteremia (SAB) is a serious infection with significant morbidity and mortality. Our primary aim was to investigate the feasibility of the management of SAB according to a pre-established bundle based on the implementation of quality-of-care indicators and its impact on 90-day mortality.

Materials/methods: Quasi-experimental, single-center, *pre-post* study. All SAB episodes occurred in 2014-2016 (*pre* phase) were retrospectively analyzed. During the *post* phase (February 2016-July 2018), infectious disease consultants evaluated all patients with SAB upon a microbiology alert, implementing the quality-of-care bundle, consisting of two steps. Step one included: follow-up blood cultures (BCs), echocardiography, removal of the central venous catheter (CVC) if present; step two included recommendation for investigating metastatic foci with 18F-FDG PET/CT scan and/or abdomen ultrasound, fundoscopy, brain CT-scan, and ultrasound study of neck vessels in presence of CVC. Implementation of the bundle and survival between *pre* and *post* phase were compared. Variables with $p \leq 0.1$ at univariate analysis were entered into a multivariate Cox regression model, patients were considered up to death or 90 days after index BCs.

Results: Overall, 485 patients were included (175 in the *pre* and 310 in the *post* phase); their median age was 71 (IQR 56-82) years, 65 % were males. No significant differences were found between *pre* and *post* phase with respect to demographics, comorbidities, MRSA prevalence and clinical severity at SAB diagnosis. During the *post* phase implementation of the first and the second step of the bundle increased from 38% to 72% ($p < 0.001$) and from 8 to 33.5% ($p < 0.001$), respectively. Overall 99 cases of complicated SAB were diagnosed (20%), 26 (15%) during the *pre* and 73 (23.5%) during the *post* phase ($p = 0.02$); 90-day mortality was 31% (36% during the *pre* and 27% during the *post* phase, $p = 0.04$). At multivariate analysis, the variables associated with 90-day mortality were: age (HR 1.02, 95% CI 1.01-1.04, $p < 0.001$), Charlson Index (HR 1.09, 95% CI 1.03-1.16, $p = 0.003$), severe sepsis/septic shock (HR 2.22, 95% CI 1.58-3.14, $p < 0.001$), compliance with the first step of the bundle (HR 0.42, 95% CI 0.29-0.6, $p < 0.001$).

Conclusions: Implementation of a quality-of-care bundle for the management of SAB improved outcome.