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Paper Poster Session
Bloodstream infection risk factors and pathogenesis

Biofilm production: assessment of the clinical impact in 104 Staphyloccus aureus bacteraemia cases

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Background: The formation of biofilm in *Staphylococcus aureus* is based on the production of a polymer-based matrix where cells are embedded. The biofilm matrix impedes the access of immune defences and antibiotic penetrance, and purportedly may constitute giving it an important virulence factor of *S. aureus*. However, we were no able to find data regarding the correlation between *S. aureus* biofilm production and the clinical impact in patients with bacteraemia. The main objective was to analyse whether there was an association between biofilm production and clinical and microbiological variables in patients with *S. aureus* bacteraemia.

Material/methods: We studied 104 *S. aureus* strains isolated from blood of patients with bacteraemia during 2014. We tested biomass production by CV and metabolic activity by XTT. Strains were classified as follows: Non-biomass producers (low values in CV), biomass producers (moderate-high values in CV), non-metabolically active (low values in XTT), and metabolically active (moderate-high values in XTT). We considered severe outcome in patients with *S. aureus* bacteremia the fulfilment of one or more of the following conditions: death, infective endocarditis, persistent bacteraemia (persistence of positive blood cultures within 6 days], and recurrent bacteraemia (7 days),

Results: The overall distribution rate of *S. aureus* biofilm production was, respectively: non-biofilm production, 32.7%, and biofilm production 68.3%. Severe outcome occurred in 29/104 (27.9%) of the *S. aureus* bacteremic episodes. We did not find statistically significant differences between biofilm production and severe outcome (**table**).

Conclusions: Biofilm production, as determined with the present methods, is not a predictor of severe outcome in patients with *S. aureus* bacteremia.

Table. Patients' clinical and microbiological characteristics according to biomass production and metabolic activity

	Global	Biomass producers, N (%)		p	Metabolically active, N (%)	
	N=104	No 34 (32.7)	Yes, 70 (68.3)		No, 33 (32.7)	Yes, 71 (
x, mean (SD)	3.2 (2.4)	3.3 (2.5)	3.2 (2.3)	0.82	2.8 (2.2)	3.4 (2.
fatal), N (%)	65 (62.5)	22 (64.7)	43 (61.4)	0.74	22 (66.7)	43 (60
re, mean (SD)	5.9 (3.4)	5.5 (3.1)	6.1 (3.5)	0.44	6.0 (3.6)	5.9 (3.
, N (%)	29 (27.9)	11 (33.3)	18 (25.4)	0.39	11 (33.3)	18 (25
	10 (9.6)	5 (14.7)	5 (7.1)	0.22	5 (15.2)	5 (7.0
docarditis	11 (10.6)	3 (8.8)	8 (11.4)	0.68	3 (9.1)	8 (11.
acteraemia	4 (3.8)	1 (2.9)	3 (4.3)	0.73	1 (3.0)	3 (4.2
acteraemia	8 (7.7)	3 (8.8)	5 (7.1)	0.76	3 (9.1)	5 (7.0