

P1106 Antibiotic therapy affects *Staphylococcus aureus* clonality during persistence in the airways of cystic fibrosis patientsCorinna Westphal¹, Dennis Görlich², Barbara C. Kahl*¹¹ Medical Microbiology, Münster, Münster, Germany, ² Biometry and Clinical Research, Münster, Münster, Germany

Background: Cystic fibrosis (CF) is a life limiting genetic disease, which affects the lungs of CF patients due to chronic bacterial infection of the airways leading to lung insufficiency and early death. *Staphylococcus aureus* is one of the earliest pathogens, which can be isolated from the airways already of CF infants and can persist for extended periods. It is not known, if there is an association between the presence of one or several *S. aureus* clones within the airways and the clinical disease.

Materials/methods: *S. aureus* isolates were collected during a prospective 21-month multicenter study from 195 CF patients from 16 CF centers in Germany and 1 center in Austria (Junge et al., PlosOne 2016). *Spa* sequence typing was performed. *Spa* types were assigned with the Ridom StaphType software. Additionally, age, gender, percentage of visits with antibiotics, percentage of visits with exacerbation, mean lung function (FEV₁% predicted) and co-infection with *Aspergillus fumigatus* or *Stenotrophomonas maltophilia* were assessed.

Results: From 1963 specimens, 3963 different *S. aureus* isolates were cultured (mean number of isolates 21 per patient, range of 1-83); 1171 isolates from nasal cultures (mean 6 per patient, range 0-26), 1619 isolates from throat swabs (mean 8, range 0-32), 1103 isolates from sputa (mean 6, range 0-51) and 70 isolates from nasal lavage (mean 0.3; range 0-16). 270 different *spa* types were assigned. Patients were distinguished according to special clonal groups: only one clone, related clones, dominant clones and prevalent clones. There was a higher probability for patients' isolates belonging to the group "related clones", if the patients were older ($p=0.033$). The more often patients were treated with antibiotics, the higher was the probability for the patients to belong to the group "only one clone" ($p=0.003$), the group "dominant clone" ($p=0.020$) and the group "no prevalent clone" ($p=0.005$).

Conclusions: Our study revealed that antibiotic therapy had a strong impact on the presence of *S. aureus* clones within the airways. From patients with more cycles of antibiotic treatment mostly single clones, which dominated and which did not belong to the prevalent clones were isolated indicating that these clones better resisted antibiotic therapy.

