145 Nutritional status and lung function in CF patients with CA−SA colonization in Caen and Lisieux CF centers − Normandy, France (2003−2007)

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In a previous work (Journal of Cystic Fibrosis, 2008, 7, S45) we had shown lung function deterioration with no clonal relationship and no Panton-Valentine leucocidine in our CA-MRSA CF population.
This retrospective longitudinal cohort study includes 31 patients data (2 years 4 months, 27 years 6 months – 2003–2007) studied through monitored parameters (CF genotype, clinical manifestations, nutritional status, lung function) using regression linear analysis methods to assess yearly decline in FEV1 and Z score of Body Mass Index.

Results:

1. An overall 58% *Staphylococcus* prevalence is demonstrated in patients: with a CA-MSA of 48% prevalence.
   - CA-MRSA prevalence increases from 3.8% (2003) to 16.1% (2007), with an average acquisition age of 15.4 years, within a 4 years interval.
   - High AB resistance rates are observed both for AC-MSSA and AC-MRSA, respectively: 66.7% and 91.7% for erythromycin, 20.8% and 29.2% for rifampicin, 12.5% and 25% for fucidic acid, 22.2% and 29.2% for cotrimoxazole and 25.5% and 91.7% for quinolones.
   - CA-MRSA colonization is correlated with a higher yearly average decline rate of FEV1 as compared with non-colonized patients; in such patients the yearly decline in FEV1 is –7.89%.
2. CA-MRSA colonization is correlated with a Z score decline: –0.67 standard deviations versus +0.06 standard deviations in CA-MSSA patients.

Conclusion: Although the observation period is limited and the number of patient studies does not permit extensive statistical analysis, this work suggests a pathogenetic deleterious impact of CA-MRSA colonization on nutritional status and lung function.

146 Periodontal pockets as potential sources of cystic fibrosis lung infection

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CF patients suffer from chronic lung infections caused by facultative and obligate anaerobic bacteria. We investigated the role of periodontal pockets as possible sources for CF lung infections. In 11 CF patients and in 11 controls facultative and obligate anaerobic bacteria were identified using biochemical identification systems in sputum (CF patients only) and periodontal pockets. Antibiotic sensitivity profiles were obtained using e-tests for piperacillin/tazobactam (TZP), ceftazidime (CAZ), meropenem (MRP), metronidazole (LZ), colistin (CS), clindamycin (CD) and azithromycin (AZM). 9 CF patients produced sputum. In 4 of them (44.4%), identical facultative anaerobes (*Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Burkholderia cepacia*) were found in periodontal pockets and in sputum. In all patients (100%), identical obligate anaerobic strains were found in both compartments (*Streptococcus, Staphylococcus, Peptostreptococcus* and *Clostridium* spp.). In periodontal pockets, percentages of resistant strains (facultative plus obligate anaerobes) were similar in CF-patients and controls: TZP 36.9 vs. 43.7, CAZ 67.6 vs. 62.3, MRP 31.9 vs. 17.0, LZ 19.1 vs. 13.5, CS 24.3 vs. 20.8, CD 8.4 vs. 1.9, AZM 56.1 vs. 53.8. Identical genera were found in both CF and control periodontal pockets. The detection of identical obligate anaerobic genera with similar resistance patterns in CF patients and controls argues for ubiquitous appearance of these bacteria. The simultaneous confirmation of identical facultative and obligate anaerobic genera in CF periodontal pockets and sputum samples suggests periodontal pockets as a possible source for lung contamination with these bacteria.

147 Clinical effect of additional systemic antibacterial agent in pulmonary exacerbation management

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Introduction: Pulmonary exacerbations (PE) are occasionally managed with more than the standard two antibiotics combination. The effect of this practice is unknown.
Methods: A review of PE occurring over 3 years managed with additional systemic antibacterials (excluding oral anti-Staphylococcal agents) was undertaken. Outcomes were compared to exacerbations in the same patient occurring immediately before and after identified episodes, managed with 2 agents.
Results: Twenty-eight patients had 37 PE managed with additional systemic agent(s). Outcomes were compared to 54 PE events occurring immediately before (29) or after (25) identified episodes. Patients were 68% F508del homozygous, 25% had CF-related diabetes and 36% were receiving enteral nutrition. Patients identified had a median FEV_1 of 45%, BMI of 20.2 and experienced 3.5 exacerbations/year. Patients were chronically infected with *B. cenocepacia* 10/28, *P. aeruginosa* 19/28, *S. aureus* 3/28 and *S. maltophilia* 2/28. Three systemic agents were used in 33 episodes, 4 in 2 episodes and 5 in 1 episode. Chloramphenicol was used 13 episodes, ciprofloxacin 18, trimethoprim-sulfamethoxazole 4, colistin 3, doxycycline 2, and an anti-pseudomonal beta-lactam in 2. Additional agents did not improve outcomes with respect to treatment duration [14 days vs 13, $p = 0.46$], time to next exacerbation [64 days vs. 52, $p = 0.280$], FEV_1 improvement [8% vs 7%, $p = 0.98$] nor resolution of inflammatory markers. Subgroup analysis did not show a benefit for any organism, antibiotic or resistance profile.
Conclusion: Additional antibacterial agents beyond the usual two drug regimen used to treat PE do not result in improved clinical outcome.

148 Changes in pathogen prevalence and resistance related to the introduction of macrolide maintenance therapy in cystic fibrosis patients

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Background: Since 2000 adult CF patients chronically infected with *Pseudomonas aeruginosa* (PA) are treated with macrolide maintenance therapy (MMT). In surveys an increased incidence of *S. aureus* resistant to macrolides has been related to MMT.
Methods: We made a comparison between 1997 (before introduction of MMT) and 2007 of pathogens in sputum isolates of adult CF patients. Isolates of 1997 and 2007 were analysed. Patients with data in 1997 and 2007 were included in a subgroup analysis with and without MMT.
Results: In 1997 154 patients (55% male, age 27.7 yrs, BMI 20.5, FEV1 predicted 54%, all medians) and in 2007 160 patients (53% male, age 34.1 yrs, BMI 21.6, FEV1 predicted 57.5%) were included. Presence of PA remained stable (66.9 resp 67.5%), presence of *S. aureus* declined from 52.6% to 32.5% and *H. influenzae* from 23.4 to 5.6%. Resistance of *S. aureus* towards macrolides increased from 14.8% to 59.6% in the entire patient group.
In those patients treated from 1997 on toward 2007 resistance rose from 12 to 86% and was equally distributed among patients treated with MMT and those not treated with MMT.
Conclusion: Introduction of macrolide maintenance therapy in patients colonised with PA was accompanied by a reduction in prevalence of *S aureus* and *H. influenzae* in sputum isolates and with a marked increase in macrolide resistance of *S. aureus*. Resistance towards macrolides however occurred in patients on MMT, but also in patients **not** on MMT in the same magnitude. Whether this is due to the low numbers of positive *S. aureus* cultures, to cross-resistance or to the use of macrolides apart from MMT needs further investigation.