101 *Burkholderia cepacia* complex (Bcc) in a children's hospital: high risk of transmissibility between cystic fibrosis (CF) and non CF patients?

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Bcc are opportunistic pathogen bacteria with a significant impact over CF. Transmissibility of Bcc among these patients is well studied. However, no sufficient data on Bcc transmission between CF and non CF individuals are available.
We studied two episodes of Bcc isolates from non CF children hospitalized in the same area with CF patients. In the first one, strains of Bcc were isolated from two immunocompromised patients at the Infectious Diseases Unit (IDU), where a CF child with chronic Bcc infection was hospitalized. The second episode happened in the ICU in a non CF patient assisted near a CF child with intermittent Bcc colonization. Strains from all non CF children were isolated from blood culture. Isolates were identified through biochemical tests and *recA* PCR. Species of Bcc strains were determined through *recA* gene sequence analysis. Air and surface samples of each room were also obtained.
Both IDU immunocompromised patients had *B. cenocepacia* B, while the CF child was infected with *B. contaminans.* In one IDU air sample a *B. contaminans* was found. In the ICU, the CF child had been colonized with *B. cepacia* while the non CF patient cultured a *B. contaminans.*
Analysis of the species isolated in both cases could not demonstrate any evidence of cross infection between CF and non CF patients. Although strict infection control measures are required in CF Bcc positive patients, detection of Bcc in other non CF patients may have other sources of infection such as environmental or contaminated medical material.

102* *Burkholderia* and *Stenotrophomonas* infections among different European countries

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Infections with *Burkholderia* species (*B.spp)* and *Stenotrophomonas maltophilia* (*St.malt*) are relatively rare among patients with CF. Looking at large populations may be beneficial.
Methods: We analysed data from the year 2007 on 15,057 CF patients from 15 countries in the European CF Registry. Using a common definition, data on chronic infection with *B.spp* was reported from 9039 patients in 9 countries and for *St.malt* from 7634 patients in 7 countries. Prevalence was standardized by age. Odds ratios (OR) for FEV-1 $\leqslant$ 40% and BMI z-score $\leqslant$–2 were adjusted for age, gender and country.
Results: Overall prevalence of chronic *B.spp* infection was 2.54%, with age standardized prevalence from 1.03 (95% CI: 0.83–1.27) to 6.59% (CI: 6.07–7.14) across countries. Patients with *B.spp* infection had twice (95% CI: 1.41; 2.84) the odds of FEV1 $\leqslant$ 40% than patients without infection and 1.32 (CI: 0.78; 2.23) the odds of having a BMI z-score $\leqslant$–2. For *St.malt* the overall prevalence was 3.76% and age-standardized prevalence varied from 0.79 (CI: 0.60–1.01) to 9.91% (CI: 9.21–10.64). Adjusted OR for FEV-1 $\leqslant$ 40% was 1.56 (1.09; 2.24) and for BMI z-score $\leqslant$–2 1.18 (0.76; 1.87).
Conclusion: The prevalence of chronic infection of both these gram negative infections is low, but varies between countries, even when adjusting for the different age structure of the CF populations. *B.spp* infection is associated with low FEV_1, but not low BMI. The association between *St.malt* and low FEV_1 is significant, but much weaker and there is no association to low BMI. Infection prevention and aggressive treatment of *B.spp* is recommended. Further monitoring of infection with *St.malt* in more countries is warranted.

103* The role of PCR in early diagnosis and monitoring of infection with *Burkholderia cepacia* complex

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Burkholderia cepacia complex bacteria (Bcc) are considered serious pathogens that cause respiratory infections in patients with cystic fibrosis (CF), although anecdotal evidence indicates that asymptomatic colonization and clearance of infection may occur. Bcc have the capacity to spread, due to which patient segregation is in place in many CF centres. To improve the infection control, it is advisable to diagnose Bcc infection as early as possible. We therefore exploited a previously published PCR method that allowed detecting low quantities of Bcc in sputum. By analyzing longitudinal microbiology data we assessed contribution of the PCR method to early Bcc diagnostics and also identified patients who cleared the infection and became Bcc free.
From 2001 to end of 2009, at least 2 Bcc positive samples were found in 107/424 CF patients examined: 86 cases were diagnosed simultaneously by both PCR and culture, but in 21 patients the first positivity was detectable only by PCR. This positivity never converted into culture positivity in 10/21 patients, while 11/21 patients became eventually culture positive 1 to 63 months following the first PCR detection of Bcc. Interestingly, 17/107 patients turned into Bcc negativity ($\geqslant$3 neg. consecutive samples) after being colonized for 1 to 45 months. In 6 out of these 17 patients, we never succeeded to culture Bcc.
The data highlights usefulness of PCR in Bcc detection as delay/failure of culture-based diagnostics was apparent in 20% (21/107) of Bcc positive patients. "Silent" Bcc colonization disappeared in 16% (17/107) of cases out of which ca. 1/3 was diagnosed only by PCR.
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104 Genomovar prevalence of *Burkholderia cepacia* complex (BCC) in a cystic fibrosis reference center in Brazil

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Introduction: *B. cenocepacia* and *B. multivorans* has been described as the most important BCC genomovars for lung function deterioration in CF patients. The aim of this study was to assess the prevalence and genomovar distribution of BCC among CF patients seen at the outpatient pediatric CF reference center.
Methods: In the last 4 years 2768 samples from respiratory tract of 217 CF patients were obtained (3 cultures/patient/year). The samples were grown in non-selective and selective medium, including the BCSA and phenotypically identified by biochemical tests and the Vitek® II. Subsequently the genomic DNA was extracted and BCC was identified by PCR recA gene amplification, using BCR1 and BCR2 primers. A second amplification was carried out by nested-PCR method, with BCC genomovars specific primers.
Results and Discussion: BCC prevalence was 20.7% (45/217), 31.1% (14/45) were transient colonization, chronic 26.7% (12/45), 8.9% intermittent (4/45), 26.7% of new cases (12/45) and 6.6% (3/45) were excluded due to patient follow-up loss. Although other studies published in Brazil and other American and European countries have found prevalence of genomovar III – *Burkholderia cenocepacia*, in this study the genomovar II – *B. multivorans* was the most prevalent (26.7%), followed by genomovar I – *B. cepacia* (24.5%) and genomovar III – *B. cenocepacia* (8.9%). We could not identify the genomovar from 13 patients and failed to recover the agent for 12 patients. Among patients with chronic colonization was observed the presence of more than one genomovar in 13.3% (6/45). The BCSA selective medium used after 2006 allowed to detect early colonization in 26.7% of patients (12/45).