May peripherally inserted central catheters (PICC) be an alternative for implantable catheter ports (ICP) for intravenous (IV) antibiotic therapy?

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Background: PICC may be an alternative to ICP for IV antibiotic therapy for Cystic Fibrosis (CF) or bronchiectasis patients with uninfrequent IV antibiotic therapies, frequent infiltrations with peripheral-short catheters and refusal of ICP.

Methods: We started using PICCs in 2 adult CF centers (Hôpital Cochin, Paris and Hôpital de la Tronche, Grenoble) in 2006 and prospectively gathered data of the insertion procedure, the outcome and complications during therapy.

Results: PICC insertions were performed in the intensive care unit by intensive care physicians (Cochin) or by a physician of the nutrition department (La Tronche). All 12 patients were female (age: 20 to 74 years), 9 were treated for CF, 3 for bronchiectasies of unknown origin. They received between 0 and 3 IV antibiotic therapies per year. Eight (61.5%) insertions attempts were successful, 5 failed because of difficult guide wire advancement. Seven antibiotic therapies were performed at home and 1 in the hospital for a duration between 7 to 22 days. Systematic echodoppler revealed no venous thrombosis. Systematic bacterial cultures of PICC tips at removal showed no infection. All 8 patients were satisfied and willing for a 2nd PICC.

Conclusion: PICC may be an alternative for ICPs in a selected population of adult patients receiving IV antibiotic therapy. No complications were reported and patients were satisfied. Failures origin may be anatomic venous difficulties or insufficiently trained insertion providers because of a new use of PICCs in CF. Echodoppler-oriented insertion may increase the rate of successful attempts.

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Efficacy of home versus hospital-administered intravenous antibiotics in cystic fibrosis

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Patients with cystic fibrosis (CF) experience repeated infective respiratory exacerbations leading to a continuous decline in lung function. The exacerbations are treated with intravenous antibiotics courses in hospital or at home.

Our aim was to compare the clinical outcome for patients undergoing intravenous antibiotic treatment either at home or in hospital. A retrospective 10-year study was performed in 4 regional CF centres. The outcome measures were percentage changes in forced expiratory volume in 1 second (FEV1), forced vital capacity (FVC) and z-score. FEV1, FVC and z-score changes were calculated for the entire study period and for each course of intravenous treatment.

A total of 153 patients were analysed (51 inpatients matched to 103 patients treated at home). The two groups had no significant differences in any outcome variable at baseline. The mean variation per year in FEV1 was greater in the hospital group versus the home group (~0.4% vs ~1.8%, p = 0.03). The mean variation per year in z-score was greater in the hospital group versus the home group (p = 0.01).

A total of 1,160 intravenous antibiotic courses were analysed. For each course, the mean improvement in FEV1 and FVC was significantly higher when performed in hospital than when performed at home (p < 0.05). FEV1 and FVC values were 10.2% and 9.5% respectively in the hospital group and 7.3% and 6.8% in the home group.

Clinical outcome, as defined by spirometric parameters and body weight, was better after a course of treatment in hospital than after a home treatment. This benefit was maintained throughout the study period.

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Socio-economic deprivation in the North West of England predicts work status in adult cystic fibrosis patients

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With improving life expectancy, the availability of work becomes increasingly important in CF, but little is known about which clinical, demographic and social factors may influence work status in these patients. To look at this further, we compared employment status with a group of clinical parameters and also residential deprivation status (based on the UK Multiple Deprivation [IMD] 2004, low score = worse) in a group of 118 adult CF patients. 73 of whom (62%) were in employment.

There was no difference between employed and unemployed patients in terms of their gender, age, lung function, number of visits to out-patient clinics, and number of courses and IV antibiotics (days see table).

However, unemployed patients were significantly more deprived (mean IMD score 7,300 vs 10,100, p = 0.012). Furthermore, when comparing patients from the most deprived areas (28 patients, IMD 1–900) with those from the least deprived (35 patients, IMD 20,000–32,482), 50% and 17% respectively were unemployed (x² = 7.75; p < 0.01).

Thus, in our cohort of CF patients, socio-economic deprivation was the only predictor of their work status, whilst other clinical and demographic factors seemed to play little or no role in differentiating between employed and unemployed patients.

Nevertheless, the overall number of our CF patients engaged in work was high, which may reflect a constantly improving health status and quality of life in adult CF.

### Table 3

<table>
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<th>IMD</th>
<th>Mean</th>
<th>Mean</th>
<th>Mean</th>
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</tbody>
</table>

*p value ns ns ns ns ns ns ns ns ns ns ns

| P value | ns | ns | ns | ns | ns | ns | ns | ns | ns | ns | ns | ns |

### Table 4

| P value | ns | ns | ns | ns | ns | ns | ns | ns | ns | ns | ns | ns |

*Mean length of stay (days).