Investigation of nosocomial pneumocystis infections: usefulness of longitudinal screening of epidemic and post-epidemic pneumocystis genotypes

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Résumé en anglais	BACKGROUND: Twenty-five patients, of whom 22 were renal transplant recipients, developed Pneumocystis jirovecii infections at the nephrology department of Reims University Hospital (France) from September 2008 to October 2009, whereas only four sporadic cases had been diagnosed in this department over the 14 previous years. AIM: This outbreak was investigated by analysing patient encounters and P. jirovecii types. METHODS: A transmission map was drawn up. P. jirovecii typing at DHPS, ITS and mtLSU rRNA sequences was performed in the patients of the cluster (18 patients with Pneumocystis pneumonia (PCP) and seven colonized patients), 10 unlinked control patients (six PCP patients and four colonized patients), as well as 23 other patients diagnosed with P. jirovecii (nine PCP patients and 14 colonized patients) in the same department over a three-year post-epidemic period. FINDINGS: Eleven encounters between patients harbouring the same types were observed. Three PCP patients and one colonized patient were considered as possible index cases. The most frequent types in the cluster group and the control group were identical. However, their frequency was significantly higher in the first than in the second group ($P < 0.01$). Identical types were also identified in the post-epidemic group, suggesting a second outbreak due to the same strain, contemporary to a disruption in prevention measures. CONCLUSIONS: These results provide additional data on the role of both PCP and colonized patients as infectious sources. Longitudinal screening of P. jirovecii types in infected patients, including colonized patients, is required in the investigation of the fungus's circulation within hospitals.
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