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Title: Clinical features of adults with seven-valent- conjugated-vaccine- serotype pneumococcal pneumonia

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Body: Background: A reduction in adult invasive pneumococcal infection has followed the introduction of a seven-valent childhood pneumococcal conjugate vaccine (PCV7) in 2006 and a thirteen-valent vaccine in 2010 in the UK. The characteristics of adults who continue to have PCV7-serotype pneumococcal pneumonia have not been described. Methods: Adults hospitalised with community acquired pneumonia from September 2008 to August 2011 were prospectively studied. Pneumococcal serotyping was performed using a validated multiplex assay. Patients with PCV7-serotype disease were compared with non-PCV7-serotype disease. Results: Of 1166 patients with CAP, 415 (35.6%) had pneumococcal disease. PCV7 serotypes were identified in 77 (27.1%) of 284 patients with a pneumococcal serotype determined. These patients were significantly older (median years 73.3 inter-quartile range (IQR)(60.8-84.4) versus 65.0 IQR (46.1-78.0); p=0.001) and had more co-morbidities (cognitive impairment (odds ratio (OR) 4.76, 95% confidence interval (95%CI) 1.77-12.78), chronic kidney disease (OR 2.87, 95%CI 1.04-7.94), stroke disease (OR 3.44, 95%CI 1.69-6.99)) compared to other patients. The proportion of patients with a World Health Organisation (WHO) performance status ≥ 1 was significantly greater in the PCV7-serotype group (OR 2.05, 95%CI 1.21-3.50). Adjusted 30-day mortality (OR 3.96, 95%CI 1.53-10.29; p=0.005) and 30-day re-admission rates (OR 3.22, 95%CI 1.28-8.10, p=0.013) were significantly associated with PCV7-disease. Conclusions: CAP due to PCV7 serotypes was associated with older patients with greater co-morbidity. Thirty-day mortality and re-admission rates were independently associated with PCV7 serotypes.