Lack of Chlamydia-related bacteria among patients with community-acquired pneumonia

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The aetiology of community-acquired pneumonia is only determined in approximately 50% of cases [1]. Chlamydia and Chlamydia-related bacteria may be the agents of some pneumonia of unknown etiology. Indeed, C. psittaci and C. pneumoniae are well-established agents of pneumonia [2], whereas Parachlamydia acanthamoebae and Simkania negevensis are considered to be emerging agents of lung infections [3,4]. However, routine cultures fail to detect these strict intracellular Chlamydiales, and broad-range eubacterial 16S rRNA PCRs (applied to lung biopsy or pleural fluid samples) also fail to detect Chlamydiales [5]. Moreover, several additional bacteria belonging to the Chlamydiales order might possibly be involved in lung infections, including Rhabdochlamydia spp. and Waddlia spp., as well as new lineages.

To fully investigate the role of all members of the Chlamydiales in lung infections, we thus investigated by a pan-Chlamydiales PCR oropharyngeal samples taken from a total of 564 patients with moderately severe community-acquired pneumonia included in a prospective study [6].

Briefly, DNA was extracted using the QIAamp DNA Mini Kit (Qiagen, Hilden, Germany). Then we performed in duplicate a homemade pan-Chlamydiales real-time PCR, as described elsewhere [7]. The results of all tests but one were negative. The positive sample, taken from a 79-year-old Swiss man, showed the presence of C. psittaci DNA. The patient was hospitalized for fever and cough. He complained of acute-onset cough, dyspnea on minimal exertion and fever. His medical history was notable for cerebrovascular disease, coronary artery disease and diabetes mellitus. There was no recent travel or documented exposure to animals. At admission the patient was disoriented, hypoxic and febrile (38.3°C), with mild tachypnea and tachycardia. Chest examination revealed dullness on percussion and crackles at the left pulmonary base. He exhibited mild leukocytosis and elevated urea. Consolidation of the left lower lobe and a small pleural effusion were documented by chest X-ray.

Intravenous cefuroxime and oral clarithromycin were administered. His condition rapidly improved, and the patient was transferred on the tenth day after admission to a rehabilitation facility. Two pairs of blood cultures, obtained before the administration of any antibiotics, remained sterile. Urine was negative for the presence of Legionella pneumophila and Strep-tococcus pneumoniae antigens. Normal oropharyngeal flora was recovered by culture from a sputum sample. Testing for the presence of C. pneumoniae and Mycoplasma pneumoniae by PCR on the oropharyngeal swab was also negative.

Contrarily to what we expected, no Chlamydia-related bacteria have been detected by the pan-Chlamydiales PCR in the largest cohort published to date. This contrasts with previous work by Marrie et al. [8], who identified two seroconversions among 255 patients with community-acquired pneumonia requiring hospitalization (0.8%), and with the study by Casson et al. [9] documenting DNA of Parachlamydia acanthamoebae in 15% of nasopharyngeal swabs taken from children with a bronchiolitis. The difference may be due to the different study populations. Here, only adults with mild and moderate community-acquired pneumonia were enrolled and immunocompromised patients were excluded, whereas in previous studies P. acanthamoebae was mainly documented among immunosuppressed patients [8,10] and children [7,9]. The absence of S. negevensis DNA argues against a pathogenic role of Simkania, a still-controversial question [2,3]. On the other hand, the documented C. psittaci infection underlines the importance of a complete diagnostic assessment, including C. psittaci, even in absence of history of exposure to birds. These data, taken together with the findings of our study, demonstrate that outside specific local conditions that may lead to cases clusters or outbreaks, different members of the Chlamydiales order, including C. pneumoniae, are not common agents of community-acquired pneumonia [11].
Conflict of interest

None declared.

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