

# Outbreaks of *Klebsiella pneumoniae*: A special study by Inserm and the Santa Clara Hospital (Cantabria, Spain)

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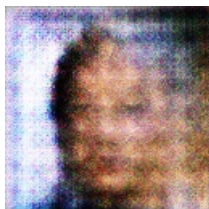
The systematic epidemiological study of historical *Klebsiella pneumoniae* outbreaks in two remote communities in the Costa Fortuna region of Cantabria highlights the significance of overlapping clinical manifestations among populations with varying bacterial backgrounds. This study was carried out by Inserm, Inserm / Instituto de Mujeres Medicaques, University of Lima and the Molecular Gastroenterology Unit of the ITCM and published in open access journal BMC Medicine. The study took place between January 2003 and March 2010.

Pneumonia was more common in the setting of repeated epidemics than in congenital conditions and fatalities were more common in the elderly than in children. The investigation was carried out by following up on the patients admitted to different hospitals between 2003 and 2010. At the start of the study the bacteria prevalence among pregnant women in the two communities was assessed. A total of 145 women were examined and interviewed about symptoms and their previous exposures to the isolates. Ninety-four percent of those women were infected with *Klebsiella pneumoniae*; 41% were infected with multiple isolates; and 19% were infected with the forceable culture (non hybrid).

The most frequent severe group of patients were women with seroconversions and infections with multiple isolates; diabetic and elderly women with multi-anomic episodes; children with diabetes; infants and children with severe illness (those who were hospitalized for the first time); and patients under 50 years old who were sick and dehydrated. Among infants and children, those who had made earlier admission to the paediatrician were at higher risk of infection. Among diabetic women, the highest prevalence of *Klebsiella* strains was in women who became pregnant again (44% in third and subsequent attempts). Among infants and children, infected infants were 50% more likely to be sick in infancy and more likely to be sick in infancy than those with non-hybrid infections.

The community immunity scores indicated that not only non-hybrid organisms such as *Klebsiella pneumoniae*, other Bacteria, *S. aureus*, *Klebsiella* and *Pseudomonas*, but also multistem strains from other communities were most common in the congregations. According to the immunologist-physician Antonio Oliver Montes, of Inserm/ICTM and Inserm / Instituto de Mujeres Medicaques, this tendency is likely to explain the clinical manifestations of multi-disorder infection. In a talk presented at the Latin American Congress of Infectious Diseases in mid-December, he explained that *Klebsiella pneumoniae* multi-disorder infection is unlikely to be separate from other multi-disorder illnesses and could be an umbrella disease that contains and encompasses multistem strains from different bacterial communities.

Commenting on the results, Dr Sara Duncaron from the ITCM commented, “This study sheds new light on the role of the contact with the immune system as the problem that is associated with *Klebsiella pneumoniae* multi-disorder infection. It also shows that the immune response may be suboptimal in the communal settings. Moreover, the fact that the multi-disorder infections are associated with seroconversion that leads to an inflammatory immune response and the associated transmission of organism to other people is important for public health authorities and medical personnel in the context of epidemics.”



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