European Respiratory Society
Annual Congress 2013

Abstract Number: 287

Publication Number: P2081

Abstract Group: 10.1. Respiratory Infections

Keyword 1: Pneumonia **Keyword 2:** Viruses **Keyword 3:** Immunology

Title: Acute lower respiratory tract infections in HIV-infected African children - A paucity of bronchiolitis

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Body: Rationale Acute lower respiratory tract infections (ALRI) contributes largely to the global burden of childhood disease, particularly in developing countries. This is due to HIV and poor socio-economic circumstances. The clinical diagnosis of viral pneumonia has been made more frequently than bronchiolitis among HIV-infected children previously. The role of HIV in ALRI is not well understood. We aim to describe the clinical symptoms and environmental risks associated with ALRI in children in South Africa. Methods Children less than 2 years admitted to hospital with an ALRI were enrolled. Healthy controls were included. A clinical diagnosis of pneumonia or bronchiolitis was made by the study doctor. Information on symptoms and environmental factors were collected. Diagnosis of HIV was made using ELISA tests and confirmed with a PCR for children less than 18 months. Results 106 symptomatic and 54 controls were recruited. Of the 106 children with an ALRI, 58 (54.7%) had pneumonia and 48 (45.3%) bronchiolitis. Of the 15 (14.2%) HIV-infected children, there were more pneumonia compared with bronchiolitis cases (93.3% vs. 6.7%, $p<0.05$). Wheeze was reported more in bronchiolitis than pneumonia cases (56.2% vs. 24.1%, $p=0.001$). Antibiotic therapy was more common in pneumonia than bronchiolitis (82.8% vs. 50.0%, $p<0.001$). HIV-infected children were more likely to have had past hospital admissions for respiratory problems than uninfected children (46.7% vs. 20.9%, $p=0.040$). Conclusion Pneumonia is more common than bronchiolitis in HIV-infected children, suggesting that there is a protection conferred by HIV infection on bronchiolitis. This needs further investigation.