Pathogen- and antibiotic-specific effects of prednisone in community-acquired pneumonia

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In a double-blind, randomised, placebo-controlled trial of hospitalised patients with community-acquired pneumonia (CAP), we demonstrated shorter time to clinical stability (TTCS) with adjunct corticosteroid therapy compared with placebo. We did a pre-planned, exploratory analysis of any association between microbiological diagnosis, antibiotic treatment and procalcitonin level and effect of prednisone on TTCS, mortality, and CAP complications (n=726 participants, enrolled between December 2009 and May 2014). Multiplex viral real time PCR was systematically performed in nasopharyngeal swabs beginning November 2011 (n=489). Other investigations and treatments were at the discretion of the physician. Effect modification was tested with inclusion of interaction terms in the statistical models. Reduced TTCS with prednisone was seen in all microbiological, antibiotic, procalcitonin and afebrile patient subgroups. We found evidence for a different prednisone response in patients with pneumococcal pneumonia in whom intravenous antibiotic duration was not shorter (interaction p=0.01) with prednisone, as was observed in the remaining study population. In patients without macrolide treatment, rehospitalisations were not lower with prednisone (interaction p=0.04). After adjustment for multiple testing, these subgroup effects were no longer significant. Prednisone was associated with shorter TTCS independent of CAP aetiology. In pneumococcal pneumonia, prednisone effects on secondary endpoints may be less favourable.