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**Title:** Adenovirus-specific immunoglobulin G maturation in acute exacerbations of COPD

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**Body:** Background: B-cells in airways and lung parenchyma gained importance in COPD pathogenesis. So far, responsible antigenic epitopes remain unknown. Pathogens may drive a beneficial as well as a harmful antibody response. Objectives: To investigate maturation of adenovirus-specific immunoglobulins in COPD patients in respect to clinical outcome. Methods: The presence of adenovirus-specific immunoglobulins during acutely exacerbated COPD (AECOPD) was analyzed at exacerbation and 2-3 weeks later. Patients with detectable adenovirus-specific IgM and low IgG avidity were grouped into fast and delayed IgG maturation, depending on IgG avidity 2-3 weeks after AECOPD. Results: Out of 208 patients, 43 patients (20.7%) had serologic evidence of recent adenovirus infection and were sub-grouped into 26 patients with fast IgG maturation and 17 patients with delayed IgG maturation. Baseline characteristics, AECOPD therapy, and duration of hospitalization were similar in both groups. However, the AECOPD recurrence rate within six months was significantly higher in patients with delayed IgG maturation ( $p = 0.003$ , figure), whereas the AECOPD related re-hospitalization rate did not differ ( $p = 0.061$ ). The time to re-hospitalization or death within two years was significantly shorter in patients with delayed IgG maturation ( $p = 0.003$ ).

**Conclusions:** Delayed immunoglobulin avidity maturation, following COPD exacerbation, is associated with poor outcome.