Title: Is sustained control of severe asthma possible? A composite score to assess 1-year of asthma control

Body: Background: It is still unclear whether sustained control of severe asthma over a 1 year period using the best standard of care, including non-pharmaceutical advice, is possible. Methods: 62 severe asthma patients were enrolled in a 2-year prospective study. After a 1 year run-in period that confirmed the asthma severity, management was optimized through six visits over the second year, including systematic attention to psychological and therapeutic adherence questions. A composite control score was used that integrated the ACQ score, the FEV1 value and the exacerbation rate at each visit to define optimal (ACQ always < 2 no exacerbation, and FEV1 always > 85% best personal values) and acceptable control (ACQ < 3.5 one mild exacerbation (no hospitalisation, no emergency visit) tolerated, and FEV1 always > 85% best personal values). Results: Optimal control was sustained in 9 out of 62 patients (15%) and 8 additional patients (total 28%) had sustained acceptable control. Exacerbations decreased significantly from 3/yr to less than 1/yr (p<0.001). Quality of life at entry was the only independent factor associated with the inability to sustain control (p = 0.019). Female gender and high FEV1 variations over the year were independently associated with annual exacerbations. The ACQ score at each visit was the best predictor of subsequent exacerbations. Conclusion: Enrolling severe asthma patients in a clinical trial efficiently decreased the exacerbation rate. Achieving sustained control over a 1 year period in severe asthma patients is still a challenge.