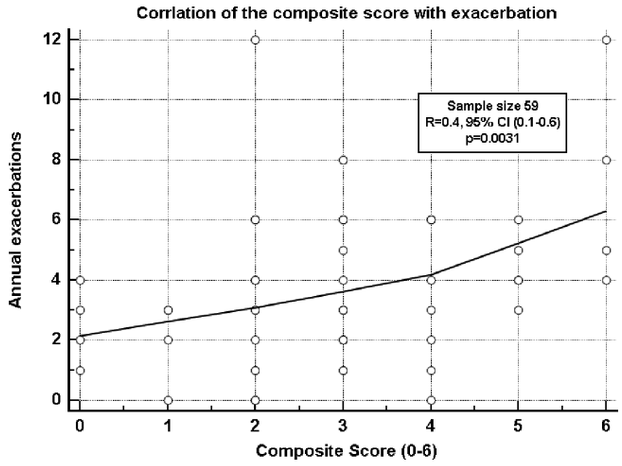
63 (55%), mean FEV1 = 2.0 L (SD1.8–2.1), FEV1% pred = 68%, and mean FEV1/FVC ratio = 71% (SD = 68–74).

A significant positive correlation between FeNO and PBE was observed (r = 0.39, p = 0.004), but not with periostin. Only FeNO significantly correlated to exacerbations (r = 0.42, p = 0.0008) and only periostin correlated significantly to ACQ7 score (r = 0.33, p = 0.0053). In addition, the biomarkers composite score significantly correlated with exacerbations (r = 0.4, p = 0.0031) (Figure 1), but not ACQ7.



Abstract P72 Figure 1 The relationship between T2 composite score and annual OCS requiring exacerbations

Conclusion In real life settings, FeNO correlated with historical exacerbations and the T2 composite score displayed a dose response correlation with exacerbations frequency. Periostin correlated with ACQ7 but not exacerbations. Further research is required to confirm these findings.

REFERENCE

1 Heaney LG, *et al*. *Thorax* 2015;**0**:1–3. doi:10.1136/thoraxjnl-2015-207326

P73 A PILOT STUDY TO INVESTIGATE THE USE OF SERUM INHALED CORTICOSTEROID CONCENTRATION AS A POTENTIAL MARKER OF TREATMENT ADHERENCE IN SEVERE ASTHMA

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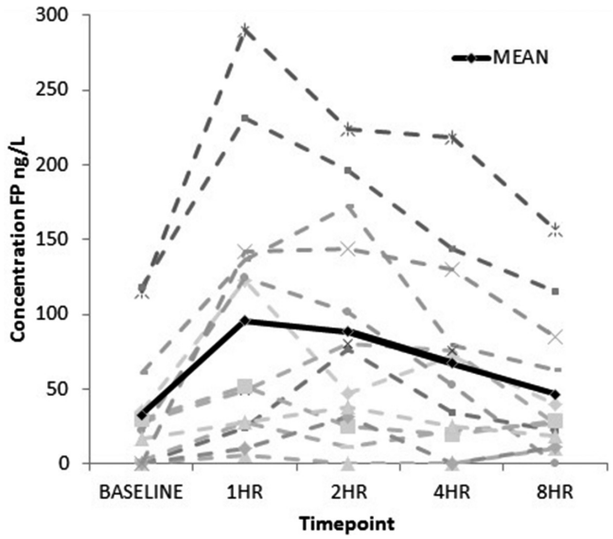
Background Inhaled anti-inflammatory therapy is fundamental to asthma management, but adherence is very poor. This increases the risk of exacerbations and poor symptom control. Currently there is no direct way of assessing adherence to inhaled steroids accurately. The primary aim of this project was to determine whether liquid chromatography tandem mass spectrometry could be used to detect fluticasone propionate (FP) in human serum as a potential aid to therapeutic monitoring. The secondary aim was to relate serum levels of FP to markers of asthma severity.

Methods We collected blood samples over an 8 hr period from inpatients with severe asthma on a stable dose of inhaled FP. Following baseline (trough) sampling, patients were observed using their inhaler, with inhaler technique documented. Subsequent samples were obtained 1, 2s, 4 and 8 hrs post inhalation. Demographic details and spirometry were also recorded.

Results Thirteen patients were recruited: 8 males, 5 females; age range 22–64 yrs; FEV1 range 53–101% predicted; 10 patients on 1000 mcg/day, and three on 2000 mcg/day FP. The mean concentration of FP at 1 hr post inhaler (peak in 7/13 patients) was 95.5 (SD 89.1) ng/L. The mean pre-dose trough concentration was 32.9 (SD 41.5) ng/L. Two patients were noted to have poor inhaler technique; these patients had some of the lowest serum FP levels recorded. The FEV1% predicted was found to be strongly correlated with the peak serum FP concentration (Pearson's r = 0.8, p = 0.001).

Conclusion We have demonstrated that FP can be detected in the blood of patients with severe asthma following directly observed therapy; this could have a potential future application as a direct measure of adherence and perhaps inhaler technique. We also demonstrated a profound effect of reduced lung function predicting low serum FP levels. Future work will explore whether poor absorption reflects relatively poor efficacy in the most severe patients.



Abstract P73 Figure 1 Serum concentration of FP at sampling timepoints; dashed lines represent individual patients; solid line group mean

P74 PREVALENCE OF SPECIFIC ANTIBODY DEFICIENCY IN SEVERE ASTHMA

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Introduction Patients with asthma are prone to recurrent infective exacerbations, due to viral or bacterial infections. We have previously presented retrospective data, demonstrating