248. Treatment of asthma, bronchiectasis and cough: inhaler use

P2161

Efficacy of fluticasone furoate (FF) and vilanterol (VI), separately and in combination (FF/VI), in an allergen challenge model

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Introduction: FF and VI are respectively, a novel inhaled corticosteroid and long-acting beta$_2$ agonist. FF is efficacious in asthma over 24h as monotherapy and combined with VI.
Objectives: Evaluate the effect of FF/VI on the allergen-induced early and late asthmatic response (EAR/LAR) and airway hyper-responsiveness (AHR) relative to placebo (PBO) and individual components.
Methods: Randomised, double-blind, 4-way crossover study of 27 mild asthma patients who received FF (100mcg), VI (25mcg), FF/VI (100/25mcg) and PBO once daily for 21 days (4 periods). Allergen challenge was performed on Day 21 of each period 1h post dose. AHR was assessed 24h later by PC20 methacholine challenge.
Results: FEV_1 maximum decline during EAR (0–2h post-challenge) was significantly less with FF/VI and FF vs PBO. Treatment differences in minimum FEV_1 (mL [95% CI]) vs PBO were 477 [282,672], 265 [66,463] and 135 [–72,343] with FF/VI, FF and VI, respectively. For LAR (4–10h post challenge) weighted mean (wm)FEV_1 was greater with all therapies vs PBO: 484 [332,636], 484 [330,638] and 168 [9,638] for FF/VI, FF and VI. Significant differences during EAR and LAR were seen for FF/VI vs VI with wmFEV_1 and during EAR for FF/VI vs FF for maximum FEV_1 decline. Alleviation of AHR relative to PBO was seen with FF/VI (2.43 doubling doses [1.65,3.21]) and FF (1.62 [0.88,2.41]) but not VI (0.26 [–0.55,1.07]).
Conclusions: FF/VI and FF protected from all components of the asthmatic response. Overall FF/VI provided superior protection from the response to inhaled aeroallergens than monotherapy, with bronchoprotective effects lasting for over 24h.
Funded by GSK (HZA113126; NCT01128595).

P2162

How frequent is bronchodilator reversibility in patients with stable asthma bronchiale and chronic obstructive lung disease (COPD) receiving maintenance therapy?

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Lung function measurement is the most important tool in the diagnosis and differentiation of obstructive lung diseases. While asthma is characterized by variable bronchial obstruction, increase of airway resistance is mostly irreversible in COPD. As response to short acting bronchodilators seems highly variable, we tested bronchodilator reversibility in stable asthma and COPD patients receiving standard care.
In patients treated with stable COPD (N=77, male: female=43:57%, age: 62,0±3,5 years) or asthma (N=57, male: female=33:67%, age: 46,6±7,4 years) pre- and postbronchodilator values of bodypletysmography measurements were analyzed using 400 ug salbutamol via easyhaler® (Buventol, Orion Pharma, Finland) during their regular out-patient visit.
Smoking was significantly more common in COPD than asthma patients (90 vs. 37%; $p<0.05$). Airway obstruction was more severe in COPD patients as compared to asthmatics (FVC: 2,38±0,26 vs. 3,14±0,43 L; FVC%: 72,6±5,1 vs. 87,4±6,4; FEV1: 1,45±0,21 vs. 2,13±0,31 L; FEV1%: 53,5±5,2 vs. 70,3±5,5, $p<0.05$). Reversible airway obstruction was present in 26% of COPD and 36% of asthma patients. Average response to salbutamol was similar in COPD patients regarding FVC (FVC: 195±22 vs. 189±25 ml; FVC%: 6,34±0,71 vs. 5,89±0,77), while smaller in FEV1 (FEV1: 126±17 vs. 254±30 ml; FEV1%: 4,97±0,69 vs. 8,67±0,88; $p<0,01$).
High proportion of COPD patients, whereas low proportion of asthmatics on regular treatment is showing ATS/ERS guideline defined reversibility using salbutamol easyhaler. Re-evaluation of diagnosis and/or therapy might follow these results.

P2163

Impact of age, age at diagnosis and duration of asthma on the risk of exacerbations in the EuroSMART study

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Background: Information about the influence of age and duration of asthma are limited.
Methods: EuroSMART, an open, randomised 6-month study (NCT00463866), compared two maintenance doses of budesonide/formoterol (BUD/FORM) (Symbicort SMART® Turbuhaler®), 160/4.5 µg 1x2 and 2x2, plus as-needed BUD/FORM, in asthmatics ≥18 y with symptoms when treated with ICS±LABA. Mean age of patients was 48 y, (range: 18–96 y) and 62% were females. The effects of biological age, age when asthma was first diagnosed, and duration of asthma were assessed. Among 8053 randomised patients, 4402 (54.6%) were >30 y of age when first diagnosed and 3411 (42.3%) had had asthma for >15 y. Data on allergic status (rhinitis, conjunctivitis) were collected. Severe asthma exacerbations were defined as: need for oral steroids for ≥3 days, emergency room treatment or hospitalisation.
Results: Presence of the allergic component decreased with increasing age at first asthma diagnosis. Patients >65 y had more exacerbations, and the risk of a first severe exacerbation was increased by 55.3% ($p<0.0001$; HR=1.553; 95% CI: 1.249, 1.931). Severe asthma exacerbations were more frequent in patients diagnosed >30 y of age (p=0.0167; HR=1.248; 95% CI: 1.040, 1.477) and more frequent in patients who had had the diagnosis for >15 y (p=0.0021; HR=1.289; 95% CI: 1.107, 1.582). However, there were no differences in time to first exacerbation between the two randomised treatments 1x2 and 2x2 inhalations in any of the above three age measures.
Conclusion: Older patients, those with higher age at diagnosis and patients with long-term asthma have more exacerbations but did not show any difference between the 1x2 and 2x2 groups.

P2164

Patient and physician perspectives on asthma control and management strategies are discordant; a primary care survey in Canada

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Background: Patients and physicians' evaluations of asthma are often discordant. We undertook this study to compare prescribed management strategies to patients' actual strategies.
Methods: In 136 primary care practices, patients with asthma described their control using the asthma control test (ACT), current medication use, number of caregivers and health care utilization. Their physicians provided their understanding of each patient's care while blinded to the patients' responses.
Results: Of 904 patients (65% women, 21% current smokers), 54% had ACT scores < 20 although only 9% would describe their asthma as poorly controlled or uncontrolled. By contrast, 73% of physicians felt that the majority of patients had achieved control. In the 12 months prior, urgent care for uncontrolled asthma was obtained by patients in the following settings: 32% in their physicians' offices; 19% at a walk-in clinic; 13% in the emergency room; and, 3% in hospital. 21% of respondents had received at least one short course of prednisone. Of 247 patients described by their physicians as taking single maintenance and reliever therapy (SMART) only 60 (25%) used medications consistent with this regimen; 39% had separate relievers as well as their maintenance drug and 35% were not using a budesonide/formoterol inhaler.
Conclusion: Physicians overestimate the asthma control achieved by their patients; in Canada, patients are commonly uncontrolled and have frequent need for urgent asthma care. Physicians have not successfully implemented SMART therapy, either because prescribing is confounded by other caregivers or because physicians misunderstand the strategy.

P2165

Halotherapy – A possible method to enhance airway treatment on patients with obstructive pathology

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Introduction: The clinical benefits of halotherapy is advocated, but the mechanisms are scarcely studied and there is not enough available clinical data. Halotherapy may influence mucolysis, antibacterial and anti-inflammatory actions, also the immunomodulator - hyposensibilizing agents. We conducted a perspective study where we use a dry-salt inhaler on patients with asthma and COPD.

Methods: The study was double-blind, randomized trial, single crossed, conducted for 4 months with 4 visits (V1 - V4). The total patient population - 128 individuals (76 - asthma and 52 - COPD stages II and III) was divided in 2 arms, crossed after first visit (V1). We instructed the patients to use the salt-inhaler 20 minutes/day. We analyzed the evolution of spirometry parameters FVC, FEV1 and PEF and a Quality of Life Questionnaire with 5 items concerning: the quality of sleep and the simptomatology.
Results: The study revealed an improvement of all spirometry parameters after the first month of treatment with salt aerosols versus placebo. The final data showed an overall improvement of FVC by 4%, 14% improvement of the FEV1 and 25% improvement of PEF parameter - showing significant improvement in asthma patients condition. Correlating quality of life responses we found out that they were improved throughout the study by 24% showing a significant impact on the quality of life.
Conclusions: Correlating both the improvements of spirometry parameters and the scores from the QoL questionnaire we found that the NaCl aerosols from a dry salt inhaler (home halotherapy) seems to be efficient versus placebo when added to regular bronchodilatatory medication but further studies are necessary.

P2166
Safety and efficacy of ectoine inhalation solution in patients with inflammation and airway obstruction: The EFECT study
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Introduction: Ectoine is a compatible solute used for symptomatic treatment of rhinitis allergica, inflammatory dermatoses and irritated epithelia. Results from different studies demonstrated the efficacy of ectoine in reducing inflammation in the airways. Based on the positive results of a trial with asthmatic patients a study was set up to evaluate Ectoine Inhalation Solution (EIL) in subjects with mild airway obstruction and inflammation.
Methods: The study was designed as double blind, placebo-controlled cross-over trial. Subjects were randomly assigned to EIL or placebo (0.9% saline). Primary endpoint was defined as reduction of inflammatory markers IL 8 and % neutrophilic granulocytes in sputum. Other sputum and breath condensate biomarkers were analysed. QoL and spirometry data were collected on visit days.
Results: Reduction of inflammatory markers IL8 and granulocytes was greater after treatment with Ectoin compared to placebo (12% for IL8, 29% for neutrophils). Statistical significance could not be demonstrated. However, total Nitrogen from sputum showed a significant reduction after Ectoin (35%, p=0.02). Other biomarkers included in the investigation indicated advantages for Ectoin (granulocytes), or placebo (TNFα, LTB4, CRP). Analysis of QoL and spirometry data did not show significance to support superiority of one of the treatment arms.
No indication for increased health risks could be detected.
Conclusions: Inhalation of Ectoin can reduce inflammatory markers and shows an excellent safety profile. The results of the EFECT study support the outcome of other studies that the membrane stabilizing Ectoin reduces epithelia derived inflammatory processes.

P2167
Lebrikizumab reduces serum periostin in asthma patients with elevated baseline periostin
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Background: Periostin is a matricellular protein induced in airway epithelia by interleukin-13 (IL13) and a good systemic biomarker for IL13 activity. Lebrikizumab, a humanized monoclonal antibody, binds IL13 and improved lung function in moderate-to-severe asthma patients (pts) with elevated baseline serum periostin in a Phase II study.
Aims: To examine the effect of blocking IL13 on systemic periostin levels in pts with uncontrolled asthma, despite inhaled corticosteriods.
Methods: Pts (n=218) were randomized to lebrikizumab 250 mg (n=106) or placebo (PB) (n=112) SC every 4 weeks for 6 doses, with 12 weeks follow-up (NCT00930163). Serum periostin was measured at baseline and throughout the study. Pts were classified as periostin-high (≥median) or periostin-low (<median) based on baseline serum levels.
Results: PB-corrected reductions in periostin were evident after 1 week of lebrikizumab treatment: 5.4% baseline reduction across all pts and 7.3% baseline reduction in periostin-high pts ($p<0.001$). At 12 weeks, periostin reductions were 9.7% ($p<0.001$) for all lebrikizumab-treated pts vs PB and 14.4% ($p<0.001$) in periostin-high pts. Periostin-low pts had no significant reduction in periostin (2.9%; p=0.3). This effect was sustained at Week 32. Most pts (>90%) who were periostin-low at baseline maintained the periostin levels <median, whereas 72% of periostin-high pts treated with PB and only 40% treated with lebrikizumab maintained periostin levels ≥median at Week 12.
Conclusions: Lebrikizumab reduced serum periostin in periostin-high, but not periostin-low pts, vs placebo. These data suggest that in asthma pts, elevated serum periostin levels are dependent on IL13 activity.

P2168
Can roxithromycin improve quality of life in bronchiectatic patients?
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Rationale: Patients with bronchiectasis suffer from sputum production and exacerbated. The aims of this study were roxithromycin, an anti-inflammatory macrolide antibiotic, could alter clinical outcome. Material and Methods: A randomized, double blinded, placebo controlled study was conducted to evaluate the effect of a 12-weeks of roxithromycin (300 mg/d) and a 12-week wash out period in HRCT proved bronchiectasis.
Results: 30 bronchiectasis patients mainly from postuberculosis with history of 2.5 times exacerbation per year were studies. During the treatment period patients in the roxithromycin group (n=15, mean age 67 yrs) and the placebo group (n=15, mean age 65 yrs) had improved quality of life by total SGRQ scores 7.31 ± 17.14 vs. 6.31 ± 18.11(mean different ±SD) but could not reach statistical significant ($p = 0.53$), at follow up wash out period there was more improvement in all domains of SGRQ scores in the roxithromycin group than the placebo group especially in the impact domain 4.17 vs -3.24 (mean different). There was no parallel improvement in sputum volume, symptom scores and pulmonary function tests. Two patients in treatment group and a patient in control group developed exacerbation and no patients in either group reported side effects. The microbiology results showed colonization of P. aeruginosa and K. pneumonia without any reported emerging drug resistance.
Conclusion: 12-week roxithromycin 300 mg once daily in symptomatic stable bronchiectatic patients did not show significant improvement of QoL by SGRQ scores, reduced sputum volume nor improved lung function. Further long term study of anti-inflammatory macrolide should be done in symptomatic bronchiectatic patient.

P2169
An observational study assessing the practice of long-term azithromycin prescription in bronchiectasis
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Introduction: Azithromycin is an effective prophylactic antibiotic in non-CF bronchiectasis.[1] However, it is known to cause side effects including hearing loss and liver dysfunction, necessitating appropriate patient monitoring. In addition, some experts advocate periods of temporary cessation of treatment, "azithromycin holidays", to minimise potential toxicity. We have examined our use of azithromycin and how we screen for complications in our specialist non-CF bronchiectasis clinic.
Methods: Data was collected on all patients with non-CF bronchiectasis who attended our specialist clinic over a 3-month period commencing 07/11/2011. In those patients receiving long-term azithromycin, we collected data on parameters including liver function tests (LFTs), audiology testing and advice given regarding "azithromycin holidays" over the previous 12-month period.
Results: Seventy patients were studied, of whom 28 (40%) were prescribed long-term azithromycin. Of these, 7 (25%) had been on azithromycin for less than 12 months. Twenty three (82%) patients on long-term azithromycin had had LFTs and 1 (3.5%) had had audiology testing in the preceding 12 months. Four (17%) of the patients treated for more than 12 months had had an "azithromycin holiday" in the preceding 12-month period.
Conclusion: Monitoring of LFTs was satisfactory in our treatment group but more attention could be paid to audiology testing and the possibility of "azithromycin holidays". Work to raise awareness of optimal practice in long-term azithromycin prescribing in non-CF bronchiectasis is needed.
1. Davies G, Wilson R. Prophylactic antibiotic treatment of bronchiectasis with azithromycin. Thorax. Jun 2004;59(6):540-1.

P2170
The p38 MAP kinase inhibitor dilmapimod ameliorates airway inflammation induced by ozone challenge in healthy volunteers
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Background: p38 mitogen-activated (MAP) kinase may be involved in inflammatory airway diseases. We studied the effects of the selective oral p38 MAP kinase inhibitor SB-681323 (Dilmapimod) on airway inflammation induced by ozone challenge.
Methods: This was a double-blind, randomized, four-period, cross-over study with two doses of Dilmapimod (5 mg, 25 mg), Prednisolone (50 mg), and Placebo

in healthy ozone responders (increase of neutrophils by >10% in sputum after inhalation of 250 ppb ozone for 3 hours with intermittent exercise). Study drug was administered 30 minutes prior to each ozone challenge. Induced sputum was collected 3 hours after the ozone challenge for measurement of neutrophils, interleukin-8 (IL-8), and myeloperoxidase (MPO). Treatment periods were separated by a 14 days wash-out.
Results: 16 subjects were randomized and 11 subjects completed all treatment periods. There was no evidence of a statistically significant difference for the number of neutrophils in sputum between Placebo and any active treatment. Relative to Placebo, statistically significant reductions of MPO and IL-8 levels in sputum supernatant were observed after treatment with Dilmapimod 25 mg and Prednisolone. Inferences based on an exploratory population of 14 subjects with sufficient sputum quality indicated a statistically non-significant reduction of neutrophils by 38%, 31% and 26% in subjects treated with Prednisolone, Dilmapimod 25 mg and Dilmapimod 5 mg, respectively.
Conclusion: Dilmapimod ameliorates ozone-induced airway inflammation. Further studies in appropriate patient populations are needed.
The Study was funded by GSK (GSK number SB-681323/10).

P2171
Effect of lidocaine and its delivery in chronic cough
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Introduction: There are no consistently effective treatments for chronic cough. Patients frequently report an urge to cough sensation in the throat. Nebulised Lidocaine has previously been reported to subjectively improve cough but there are no objective data.
Aims: To compare the effect of lidocaine throat spray, nebulised lidocaine and placebo on subsequent 10-hour ambulatory cough rate (Vitalojak®) and urge to cough visual analogue scores.
Methods: 26 patients with chronic cough completed a randomised double blind, placebo controlled, three-way crossover study. The different treatments were:
· Placebo: nebulised placebo followed by placebo throat spray
· Nebulised lidocaine (600 mg): nebulised lidocaine followed by placebo throat spray
· Throat spray Lidocaine (100 mg): nebulised placebo followed by lidocaine throat spray
Data were analysed using generalised estimating equation models.
Results: 26 patients completed (22 female, mean age 53.5 yrs, median cough duration 10 yrs).
Median 10 hour cough rate (n=25) (coughs/hr; IQR) was nebulised lidocaine 34.4 (13.5–57) vs lidocaine throat spray 23.9 (12–55.8) vs placebo 32.7 (19–56.1). For the natural log transformed cough rate, there was significant difference between placebo and lidocaine throat spray (p= 0.02), but not nebulised lidocaine (p = 0.8), with most of the effect in the first 3hrs. Compared with placebo, both nebulised (p=0.01) and throat spray lidocaine (p=0.02) substantially reduced the urge to cough, but with no difference between them (p=0.6).
Conclusion: Unlike nebulised lidocaine, throat spray significantly reduced the 10-hour cough rate compared with placebo. This suggests that local treatment targeting the pharynx may be an effective anti-tussive in chronic cough patients.

P2172
Bidirectional modulation of urge to cough by nasal TRPA1 and TRPM8 agonists in healthy human subjects
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Cough, the most important airways defensive mechanism is modulated by many afferent inputs either from respiratory tussigenic areas, but also by afferent drive from other organs. Modulation of cough by nasal afferent inputs could either facilitate cough response or inhibit it in animal models, depending on the type of trigeminal afferents which are stimulated. In recent study we addressed the question of possible bidirectional modulation of cough response in human healthy volunteers by nasal challenges with TRPA1 and TRPM8 agonists respectively. After nasal challenges with AITC, cinnamaldehe, (-) menthol and (+) menthol (all 10-3 M, nasal symptom score, cough threshold (C2), urge to cough (Cu) and cumulative cough response had been tested).
Nasal challenges of TRPA1 relevant agonists induced considerable nasal symptoms, significantly enhanced urge to cough ($p < 0.05$) but modulation of C2 and cumulative cough response did not reach significance level. Both TRPM8 agonists administered to the nose significantly modulated all parameters including C2 (p0.05), Cu ($p< 0.01$) and cumulative cough response ($p < 0.001$) documenting strong anti irritating potential of menthol isomers.
Except the role of trigeminal afferents expressing TRP channels, also olfactory nerve endings, trigemino – olfactoric relationships, smell perception process and other supramedullar influences have to be taken into consideration as relevant enough to modulate cough response in humans.
Supported by VEGA 1/0031/11.

P2173
A new rapid-onset dextromethorphan formulation for cough
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Background: Dextromethorphan (DEX) is known to be an efficacious anti-tussive agent. A novel DEX gel formulation (Arnold D®: Proctor & Gamble), with supra-oesophageal absorption, has been developed for fast relief from cough.
Aim: To evaluate the time to onset of action of 22mg DEX gel (equivalent to 30mg DEX) compared to standard 50mg oral DEX in a normal volunteer citric acid aerosol (CAA) induced cough model.
Method: Healthy subjects aged 18-65 years with a cough count between 7-20 coughs following five inhalations over 5 min. of 10% citric acid at screening were recruited. Subjects were administered oral DEX 50mg and at a subsequent visit at least 5 days later, DEX 22mg gel. Cough frequency was measured at baseline and at t = 15 min, 1, 2, 4 and 6 hours post dose.
Results: 42 (20 male) subjects were enrolled onto the study. At 15 minutes post dose there was a significant (p=0.001) difference in the mean (±SDEV) % reduction in cough from baseline of 32.1 (±4.99) with DEX gel vs 12.8 (±2.8) with oral DEX. Over the 6 hour time period (AUC_{6hrs}) there was a significantly (P=0.02) greater % change in cough/hr following DEX gel AUC_{6hrs} = -188.7 compared to oral DEX 50 mg; AUC_{6hrs}=-114.2. There were no major safety issues.
Conclusion: In the evoked cough model, DEX gel has a faster onset of action compared to oral DEX and was more effective over the 6 hour time period despite there being a lower concentration of DEX in the gel preparation. A lack of blinding due to different routes of administration may contribute to this effect. A buccal route of delivery with this formulation holds promise for this and other indications where rapidity of onset is required.
This study was supported by unrestricted grant aid from P+G.

P2174
Progressive case of recurrent respiratory papillomatosis successfully treated with gefitinib
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Recurrent respiratory papillomatosis (RRP) or juvenile laryngeal papillomatosis is a rare disease, caused by human papilloma virus (HPV). It is characterized by epithelial neoplastic polyps in larynx, trachea (2 - 5%) and lungs (1%). Typical symptoms are hoarseness, chronic cough and dyspnea. Diagnosis is based on laryngo/bronchoscopy, chest x-ray, biopsy and HPV testing.
We describe a case of woman with progressive laryngeal papillomatosis from the age of 1 year. Disease slowly progressed to trachea, although patient underwent about 80 endoscopic laser procedures. In the age of 37 y, chest X ray showed multiple nodules and cysts filled with fluid. VATS biopsy proved parenchymal papillomatosis. Patient was treated unsuccessfully with interferon, antiviral vaccine and Cidofovir. In the age of 41 y, therapy with gefitinib 250 mg bid was started. Bronchoscopy revealed regression of papillomas after 2 months and normal laryngeal and tracheal mucosa after 6 months. Chest X-ray was normal and CT showed tiny cysts without fluid. Patient felt well without dyspnea and tolerated treatment without problems.
Gefitinib - tyrosine kinase inhibitor of epidermal growth factor receptor (EGFR) was chosen according to knowledge of EGFR overexpression in papillomas and sporadic information about treatment of children with laryngeal papillomatosis. To our knowledge, this is the first report of successful gefitinib treatment of RRP in adult patient. The role of HPV in tumor forming tissue reaction is not known. Frequent HPV detection in gefitinib-responsive lung adenocarcinomas gives another support for gefitinib indication in RPP and a new hope for patients, too.

P2175
Erdosteine – A new drug in the treatment of chronic rhinosinusitis
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Introduction: Antiinflammatory macrolide antibiotics proved efficient in chronic rhinosinusitis (CRS). Since this medication is associated with potential side effects and the danger of development of resistent bacteria, alternative drugs are being sought.
Objectives: Another drug exerting similar, cytokine-mediated antiinflammatory response is Erdosteine. However, it has not been tested in this diagnosis yet. In a prospective post-authorisation study we therefore assessed the efficacy of Erdosteine in patients with CRS.

Methods: 60 patients with CRS were enrolled, with 33 and 27 of them being treated by Erdosteine 2x300 mg without (group I) and with topical steroid (group II), respectively, for 3 months. Outcome measures included Sinonasal Outcome Test (SNOT-22) and nasal endoscopic score (Levine-May).
Results: The pre- and posttreatment SNOT-22 score in group I was 36 and 19, in group II 39 and 27, respectively. The nasal endoscopic score in group I was 2.55 and 1.29, in group II 2.02 and 1.30. In both groups the differences showed statistical significance.
Conclusion: The results of our pilot study suggest Erdosteine treatment efficacy in CRS. Additional in vitro and clinical studies are required to determine its precise action.

P2176
A cross-sectional study examining inpatients' metered dose inhaler technique and the impact of assessment and education on its effective use
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Introduction: Metered dose inhalers (MDI) are often prescribed during hospital admission. MDI technique influences clinical effectiveness, yet inpatient assessment and education regarding this skill may not happen routinely.
Objectives: We hypothesised that a) inpatients on an acute medical ward often have poor MDI technique and b) simple assessment and education could improve MDI technique.
Methods: A cross-sectional study was conducted on inpatients prescribed an MDI on an acute medical ward during the month of October 2011. Technique was assessed using an Aerosol Inhalation Monitor, by a Health Care Assistant (HCA) trained in its use. Patients with poor technique had simple training and assessment was repeated.
Results: A total of 38 patients were studied (M:F=1.1:1, Age range=40-91). Initial assessment showed only seven patients (18.4%) were able to use the device effectively. The 31 patients (81.5%) that failed initial assessment had simple education regarding technique, and of these eight (25.8%) were then able to successfully use the MDI. Out of the 23 patients that failed reassessment, even after education, 10 (43.5%) were unable to *"synchronise"* administration of medication and a spacer was prescribed. The remaining 13 patients (56.5%) that failed reassessment were unable to use an MDI even with a spacer device.
Conclusions: The majority of inpatients prescribed an MDI were unable to use the device effectively. Basic education and inhaler adjuncts addressed many of the difficulties with MDI usage in this patient group. HCA led assessment of inhaler technique appears to be an invaluable tool in tailoring the use of MDI.

P2177
Preference, satisfaction and critical errors with Genuair® and HandiHaler® in patients with COPD
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Introduction: Treatment outcomes in COPD depend on patient preference and satisfaction with their inhaler and inhaler technique. Patients often use their inhaler incorrectly, making critical errors that mean they get no drug or a suboptimal dose, leading to under-treatment of their disease.
Aims: To investigate patient preference, satisfaction and critical errors with Genuair® vs HandiHaler® after 2 weeks of daily use.
Methods: This was an open-label, randomised, cross-over, multicentre study in patients with COPD. Patients inhaled placebo through Genuair® and HandiHaler® daily for 2 weeks in addition to their current medication. The primary endpoint was the percentage of patients who preferred Genuair® after 2 weeks. Additional endpoints for each inhaler were overall patient satisfaction on a scale of 1 (very dissatisfied) to 5 (very satisfied), percentage of patients making ≥1 critical errors, and willingness to continue using each inhaler rated from 0 (not) to 100 (definitely). Data were analysed using Mainland-Gart's test or ANOVA.
Results: The ITT population included 105 patients. Assessments at 2 weeks are shown in the table.

	Genuair®	HandiHaler®
Preference (% patients)	79.1*	20.9
Overall patient satisfaction (scale 1–5; LS mean)	4.6*	3.8
Very satisfied with device (score 5; % patients)	54.8*	19.0
≥1 critical error (% patients)	10.5*	26.7
Willingness to continue (LS mean)	84.0*	62.5

*p<0.0001 vs HandiHaler®.

Conclusions: Genuair® was associated with higher patient preference, satisfaction and fewer critical inhaler errors vs HandiHaler®.
This study was supported by Almirall S.A., Barcelona, Spain, and Forest Laboratories, Inc., New York, USA.

P2178
The effects of different inhaler devices on asthma control in patients with persistent asthma in Turkey
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Aim: Persistent asthma is a chronic condition treated with continuous use of inhaler devices and stringent courses of follow-up as inhalers requires compliance and close follow-up. We aimed to investigate the effective use of inhaler devices in persistent asthma patients through patient and physician questionnaires.
Methods: Patient and physician questionnaires were implemented for basic application procedures of inhalers, including trainings. Physicians evaluation of asthma control was performed by ACT™.
Results: A total of 572 patients were enrolled at 31 centres. Evaluation of basic inhalation techniques; showed common errors; omitting exhaling before inhalation (10-15%), mouth rinsing or incorrect inhalation (20%) and omission of mouth rinsing. Evaluation of asthma control was performed at baseline and following visits, 22% of asthma patients were under control at baseline, increasing to 43%. Fixed combination inhalers BDP/F solution spray, F/S discus, B/F Turbuhaler significantly reduced the rate of uncontrolled patients by p=0.004, p<0.001, p=0.003 respectively where no significant decrease was seen with B+F Aerolizer for related asthmatic group (p=0.13).

Table 1. Asthma treatment with inhalers, % of uncontrolled asthma (n=572 patients)

Inhaler Device	V1, n (%), not controlled	V4, n (%), not controlled	p
Aerolizer B+F	36 (42,8%)	12 (23,5%)	p=0.13
Discus F/S	58 (38,2%)	9 (11.4%)	<0.001
Solution Spray BDP/F	35 (32,7%)	6 (10.0%)	p=0.004
Turbuhaler B/F	65 (41,7%)	13 (14,9%)	p=0.003

Conclusion: This study collected information on specific use of inhaler devices in persistent asthma patients and a correlation in a balanced perception of use for every device by physicians and patients were shown.

P2179
The asthmatic patient and inhaler treatment devices profile in Turkey: Asthma inhaler treatment study
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Aim: Factors such as severity, duration of asthma, concomitant diseases, smoking habits, influence asthma control, besides compliance to inhaler devices. In this study, we aimed to profile contributing factors and conditions and inhaler devices in Turkey.
Methods: In this non-interventional study asthma patients were surveyed at baseline for asthma history, demographics, concomitant medical conditions and smoking habits,with possible impact on asthma and its prognosis, including exacerbation rates. The profile of treatment agents and devices were also evaluated.
Results: A total of 572 patients were enrolled at 31 centers. The majority of asthma patients registered to the study was female (76%) and mean age was 42.7±12.1, the mean asthma age was 7.98±8.28 years. BMI was 28.0 kg/m^2.During enrolment, asthma symptoms were under control in 22% of patients enrolled, in 38% was not under control and 40% was partially controlled. During enrolment 56% of patients had co-morbid conditions, and 65.5% had rhinosinusitis, 12.8% had GERD, with high percentage of uncontrolled asthma. One in every five patient (18.2%) was current smokers and 49% had uncontrolled asthma during baseline.

Table 1. Asthma treatment at baseline (n=572)

Treatment	n	%
Fixed combinations	455	79,5
Bronchodilators, as required	186	32,5
ICS	116	20,3
LABA	78	13,6
ICS+LABA	72	12,6
Others (i.e., montelukast)	130	22,7

Conclusion: Patient profile of asthmatics receiving inhaler treatment showed that one out of every five patients enrolled were effectively controlled, despite smokers and presence of complicating concomitant medical conditions. Fixed combinations are the main stay of therapy in Turkey, with all types of inhaler devices.

P2180

Oxygen use and nasal symptoms

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It is recognised that oxygen should be prescribed as a drug, but little has been studied about the comfort or side effects of oxygen.

Aim: We wished to see if oxygen had significant nasal side effects for our in-patients.

Method: A snapshot questionnaire was asked to all patients on oxygen on the medical wards of our large teaching hospital during a one week period.

We used the Lund score, using predominantly questions in the nasal domain (rating 1-4; normal to severe), to compare their symptoms pre and during admission.

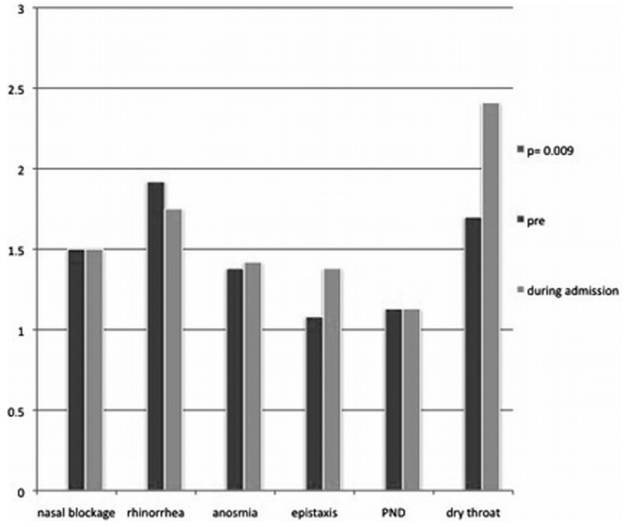
Results:

Demographics

Male	Mean age	≥2 days on O2	Humidified O2	Nasal O2	Oral steroids
50%	72.7	92%	8%	87.5%	25%

Diagnosis	No. of patients
Respiratory infection	11
COPD	8
CCF	2
Other	3

24 patients were able to answer the questionnaire; the majority were on nasal oxygen and using it for more than 2 days. 42% reported that oxygen wasn't comfortable, but there was only a significant difference in the symptom of a dry throat (mean difference 0.71, p= 0.009). 4 patients had worsening epistaxis whilst in hospital; 2 rating that as severe.



Discussion: In our patient group using predominantly nasal non-humidfied oxygen there was no change in nasal symptoms; it is possible this was ameliorated by the use of steroids in some. However, nearly half found some aspect of oxygen use uncomfortable, and this further supports the need for care regarding the prescription of this drug.