Association of COPD with Heart failure – Analysis of NHANES Data

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Introduction: The rising prevalence of multiple comorbidities in individual patients challenges the resources of healthcare systems. The optimal treatment of these patients is often based on the individual disorders as if they occur in isolation. Chronic obstructive pulmonary disease (COPD) and heart failure (HF) are systemic disorders that share common risk factors. We analyzed National Health and Nutrition Examination Survey data to determine association on COPD with Heart Failure. Given COPD is a chronic inflammatory disorder we hypothesized that it is associated with heart failure.

Methods: We performed a retrospective, cross sectional analysis of NHANES data for the years 1999 to 2012. We constructed logistic regression models with heart failure as the dependent variable controlling for COPD, overweight, hypertension, diabetes mellitus, elevated cholesterol and physician-diagnosed cardiovascular disease (CVD). Data were standardized to the 2000 U.S. national population census 2000.

Results: Of approximately 209 million individuals, 14.9 million were diagnosed with COPD. The prevalence of heart failure in COPD cases was 9.3% compared to 1.9% in cases not diagnosed with COPD (OR = 5.3, p < 0.0005). In multivariate analysis controlling for relevant covariates, COPD patients had nearly four times greater odds of having HF, 3.7 (90.7), p < 0.0005. CVD, OR 10.2 (42.1) and diabetes, OR 2 (0.3) (OR=2) were significantly associated with HF in participants with COPD.

Conclusion: COPD cases have 3.7 times higher odd of being associated with HF compared to cases without COPD. History of CVD and diabetes also attained statistically significant association.

Prognostic judgment of children with Mycoplasma pneumoniae pneumonia associated with airway mucous plug formation

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Abstract: Objective To investigate the clinical characteristics and treatment defects in slow-to-recover children with Mycoplasma pneumoniae pneumonia (MPP) associated with airway mucous plug formation, and to provide a basis for prognostic judgment and therapeutic guidance.

Methods A retrospective analysis was performed on the clinical data of 67 children with MPP who were admitted between May 2012 and May 2014 and showed airway mucous plug formation in fiberoptic bronchoscope examinations. Based on the results of re-examinations using imaging methods, all patients were classified into a slow-to-recover group (n=30) and a control group (n=37). Comparisons of clinical outcomes, laboratory indices, imaging findings, and treatment methods were performed between the two groups. The receiver operating characteristic (ROC) curves were drawn to analyze the indices with significant differences.

Results The percentage of neutrophils, levels of C-reactive protein (CRP), lactic dehydrogenase (LDH), fibrinogen (FIB), and IgM in peripheral blood, and incidence of pleural effusion were significantly higher in the slow-to-recover group than in the control group (P<0.05). The fever duration and treatment time of azithromycin and fiberoptic bronchoscope for the first time were significantly longer in the slow-to-recover group than in the control group (P<0.05). The results of ROC curve analysis showed that the optimal cut-off points of fever duration, percentage of neutrophils, levels of CRP and FIB, and treatment time of fiberoptic bronchoscope for the first time were 11.5 days, 70.7%, 57 mg/L, 4.7 g/L, and 13.5 days, respectively, with sensitivity and specificity higher than 0.643 and 0.727.

Conclusions The fever duration, percentage of neutrophils, level of CRP, level of FIB, and treatment time of fiberoptic bronchoscope for the first time can predict a recovery time longer than two months in children with MPP associated with mucous plug formation.
Role of Common Pulmonary Function Testing in Diagnosis and Treatment of Asthma in Children

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Abstract: Objective To investigate the changes in the large and small airway function in children with asthma and the time interval changes by comparing the lung function indexes pre and post regular treatment. To reveal the response of airway to bronchodilator and the reversibility of airway stenosis and obstruction in children with asthma in different ages by comparing the changes of lung function of asthmatic children pre and post inhaled bronchodilator.

Methods Twenty–five children with asthma were measured with general pulmonary at acute stage, remission stage of 3 months, 6 months and 1 year, the measured value and the estimated value of different stage weqel compared. Moreover, 10 cases of them were received bronchodilator test respectively among acute attack period.

Results The measured value of forced vital capacity (FVC), forced expiratory volume in one second (FEV1), forced expiratory volume in one second to forced vital capacity ratio (FEV1/FVC), peak expiratory flow (PEF), forced expiratory flow after 25%, 50%, 75% (FEF25, FEF50, FEF75), maximal midexpiratory flow (MMEF75/25) were lower than predicted value in acute stage, then 1 month after therapy, the large airway function index were recovered in remission stage, the large airway function index were recorded after atomized of the subsequent 6 months therapy, and after treatment of 1 year or more, the small airway function was recovered.

Conclusions There are dynamical changes of the lung function index during acute and remission stage. 80 pulmonary function testing has a good assessment in diagnosis, efficacy and disease in children with asthma.

Efficacy of omalizumb in allergic asthma by asthma severity and eosinophilic status
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Introduction Response to biologic therapies for the treatment of asthma may be predicted by clinical and biologic markers of asthma severity.

Objectives This post hoc analysis was conducted to determine if clinical markers of asthma severity and blood eosinophils predict response to omalizumab (OMA) treatment for severe allergic asthma.

Methods Data were pooled from 2 phase 3 pivotal trials of OMA in allergic asthma (N=1071). The number of asthma exacerbations requiring systemic corticosteroids from three Phase 3 trials to assess the potential benefit of continued treatment with pirfenidone in patients who experienced a ≥10% absolute decline in percent predicted forced vital capacity (%FVC) during the first 6 months of treatment.

Results: Of 207 prospectively enrolled pregnancies, outcomes from 186 pregnancies were reported. Asthma severity was available for 164 women: mild (4/164, 2.4%), moderate (55/164, 33.5%), severe (105/164, 64.0%). There were 174 live births of 178 infants (4 twin pairs), 8 spontaneous abortions, 2 fetal deaths/stillbirths and 2 elective terminations. Of 170 singleton infants, 24 (14.1%) were born prematurely (<37 weeks) and of these 3 (12.5%) were considered small for gestational age (SGA, <10th percentile). Of 140 singleton full-term infants with weight data, 4 (2.9%) had low birthweight and 16 (11.4%) were considered SGA. Overall, 27 infants had confirmed congenital anomalies (15.2%). Eleven infants had a major birth defect (6.2%); omalizumab exposure occurred in the first trimester in all cases. No pattern of anomalies was observed.

Conclusions: Given the small sample size and severity of maternal asthma, these pregnancy outcomes are not inconsistent with previous observations.

Effect of continued treatment with pirfenidone following a clinically meaningful decline in percent predicted forced vital capacity in patients with idiopathic pulmonary fibrosis (IPF)
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Introduction: Clinical assessment of therapeutic response in IPF is confounded by variability in the rates of disease progression. We pooled data from three Phase 3 trials to assess the potential benefit of continued treatment with pirfenidone in patients who experienced a ≥10% decline in percent predicted forced vital capacity (%FVC) during the first 6 months of treatment.

Methods: Source data included all patients randomized to treatment with pirfenidone 2403 mg/d or placebo in the Phase 3 ASCEND or CAPACITY studies (N=1247). We selected patients with a ≥10% absolute decline in %FVC by the month 3 or 6 study visit and compared the proportion of patients in the pirfenidone and placebo groups who experienced any of the following during the subsequent 6-month interval:

Results: There were 34 (5.5%) patients in the pooled pirfenidone and placebo groups, respectively, experienced a ≥10% absolute decline in %FVC between baseline and month 6 (relative difference, 49.5%). During the subsequent 6-month interval, fewer patients in the pirfenidone group compared with placebo experienced a ≥10% decline in %FVC or death (23/34 [68%] vs 30/34 [88%]; P=0.005). More patients in the pirfenidone group compared with placebo had no further decline in %FVC (20/34 [58.8%] vs 26/34 [76.5%]). Additionally, there were fewer deaths in the pirfenidone group (1/34 [2.9%] compared with placebo (3/34 [10%]).

Conclusions: These findings suggest a potential benefit to continued treatment with pirfenidone despite an initial decline in FVC.

SELECTED PERINATAL OUTCOMES IN PREGNANT WOMEN EXPOSED TO OMALIZUMAB: INTERIM RESULTS FROM A PROSPECTIVE, OBSERVATIONAL STUDY
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Introduction: Data regarding maternal and fetal outcomes for many asthma medications are insufficient.

Methods: EXPECT is an ongoing prospective, observational study of pregnant women exposed to ≥1 dose of omalizumab within 8 weeks prior to conception or at any time during pregnancy. Data on mother and pregnancy/infant are collected at enrollment, each trimester of pregnancy, pregnancy outcome, and up to 18 months post-delivery. Maternal asthma severity is assessed by mother’s health provider. Data collected: rates of live births, spontaneous abortions, elective terminations, stillbirths, birth weight, gestational age, and congenital anomalies. Data are from an annual cumulative summary including September 29, 2006 - November 30, 2013.

Results: Of 207 prospectively enrolled pregnancies, outcomes from 186 pregnancies were reported. Asthma severity was available for 164 women: mild (4/164, 2.4%), moderate (55/164, 33.5%), severe (105/164, 64.0%). There were 174 live births of 178 infants (4 twin pairs), 8 spontaneous abortions, 2 fetal deaths/stillbirths and 2 elective terminations. Of 170 singleton infants, 24 (14.1%) were born prematurely (<37 weeks) and of these 3 (12.5%) were considered small for gestational age (SGA, <10th percentile). Of 140 singleton full-term infants with weight data, 4 (2.9%) had low birthweight and 16 (11.4%) were considered SGA. Overall, 27 infants had confirmed congenital anomalies (15.2%). Eleven infants had a major birth defect (6.2%); omalizumab exposure occurred in the first trimester in all cases. No pattern of anomalies was observed.

Conclusions: Given the small sample size and severity of maternal asthma, these pregnancy outcomes are not inconsistent with previous observations.

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