Association of COPD with Heart failure – Analysis of NHANES Data

T.R. Dammalapati, MD, S. Annangi, MD, M.G. Foreman, MD.

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 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 (±0.7), p < 0.0005. CVD, OR 10.2 (±2.1) and diabetes, OR 2 (±0.3) 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.

Asthma in the Elderly: The Effect of Choline Supplementation

Michele Columbo, M.D., Albert S. Rokh, M.D.

Introduction: Asthma in the elderly is poorly understood as very few studies have included these patients. DNA methylation can affect the expression of asthma susceptibility genes. Methyl groups can be produced through a choline dependent pathway. Asthmatics have decreased serum choline. We studied the effect of choline supplementation in elderly asthmatics and associations between different parameters.

Methods: This is a double-blind, placebo-controlled, cross-over study. Thirty asthmatics 65 years old and older were evaluated at baseline and 3, 6, 9, and 12 weeks later. They randomly received choline bitartrate 310 mg and placebo capsules twice daily for 6 weeks.

Results: Mean age was 73 ± 5.9 years, asthma duration 34.8 ± 21.2 years. 27/30 subjects were atopic, 23/30 had rhinitis; 29/30 subjects were using inhaled corticosteroids, 20/30 long-acting bronchodilators, 11/30 montelukast. Baseline ACT (Asthma Control Test) was 22 ± 3.3, FEV1% 75 ± 20.4%, FEV1/FVC 0.73 ± 0.1, FEF25-75% 71 ± 38.2%, peripheral blood eosinophils 0.38 ± 0.31 K/U/L, serum IgE 198 ± 210 U/ml. Choline supplementation did not affect ACT, spirometric values, eosinophils or IgE vs. placebo. In subjects with lower ACT (<20, 16.7 ± 3.3, n=6), lower FEV1% (<60%, 46.4 ± 9.2%, n=6), or higher eosinophils (≥0.6, 0.88 ± 0.35 K/U/L, n=6), there was no difference between choline and placebo. We found no significant association between the different parameters at baseline including in subjects with lower ACT or on higher inhaled steroid doses (≥400 mcg/day, n=13).

Conclusions: In summary, in this study of elderly asthmatics, choline supplementation for 6 weeks did not affect ACT scores, spirometric values, peripheral blood eosinophils, or serum IgE. These results will require confirmation in larger and longer studies.

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

AN Shu-Hua, TIAN Li-Yuan, ZHANG Li-Jun, LJ Jin-Ying

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 bronchoscopy 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), lactate 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 antibiotics and 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.

EBUS-TBNA in a community hospital: Does formal training in fellowship improve diagnostic yield?

T. Chandak, MD, R. Gamarrallage, MD, C. Joseph, MD

PURPOSE: Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) is a standard technique that allows diagnostic sampling of mediastinal/hilar lymph nodes and masses. The purpose of this study was to evaluate the diagnostic yield (DY) of linear EBUS and to determine if physicians with formal EBUS training in fellowship performed better than those who were self-trained.

METHODS: In a 293-bed community teaching hospital in Western Massachusetts, EBUS-TBNA procedures from 2011-2014 were retrospectively analyzed. Rapid on-site cytological examination (ROSE) was available for all procedures. Pathologists’ report of presence of adequate diagnostic specimen was considered as positive diagnostic yield. The statistical analysis was performed using one proportion testing for comparison of DY between groups.

RESULTS: 76 EBUS-TBNA procedures were reviewed. The DY for the year 2013-14 was 93.1 %, when compared to 2012-13: 63.8 %, (95% CI: 0.45 to 0.12, p value 0.001). The DY was not higher for operators who had EBUS training in fellowship compared to operators who were self-trained (77 % vs 71%, p-value 0.335). 2 out of the 6 operators received training in fellowship. The DY was not significantly different between pulmonologists and thoracic surgeons (75% vs 76%, p-value 0.964). The diagnoses included NSCLC (38.2%), SCLC (22.4%), sarcoidosis (15.8%), lymphoma (2.6%) and reactive lymphadenopathy (21.1%). No complications were reported.

CONCLUSIONS: In a community hospital setting, we conclude that EBUS-TBNA has excellent safety profile; the yield improves over time as procedural volume increases. However formal training during fellowship is not necessarily predictive of a better diagnostic yield. Self-trained operators can achieve procedural competence and comparable diagnostic yield, although lower than academic centers.
Asthma in Children

TIAN Li-Yuan, AN Shu—hua, Li Jin-Ying, ZHAO Qing—juan, ZHENG Bo-Juan

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 function at acute stage, remission stage of 3 months, 6 months and 1 year, the measured value and the estimated value of different stage weigthed compared. Moreover, 10 cases of them were received bronchodilatation test respectively among acute attack period.

Results 11ie 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 rate(PEFR), forced expiratory flow after 75% of FVC (FEF75), maximal midexpiratory flow (MEF75/25) were lower than predicted value in acute stage, then increased in remission stage. The large airway function index were recovered after 3 months therapy, and after treatment of 1 year or more, the small airway function were recovered. Indicators of large airway function such as FEV1 and PEF, and indicators of small airway function of FEF25, FEF50, FEF75, MEF75/25 were also recovered after atomized.

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

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SELECTED PERINATAL OUTCOMES IN PREGNANT WOMEN EXPOSED TO OMLIZUMAB: INTERIM RESULTS FROM A PROSPECTIVE, OBSERVATIONAL STUDY

Jennifer Namazy, 1 Abdellaoue Rahmaoui, 2 Michael D. Cabana, 3 Angela E. Scheuerle, 4 John M. Thorp, Jr., 3 Gillis Carrigan, 5 Elizabeth B. Andrews, 6

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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Efficacy of omalizumab in allergic asthma by asthma severity and eosinophilic status

Nicola A. Hanania, 1 Benjamin Trzaskoma, 2 Karin Rosén, 2 Volkman Manga, 1 and Theodore A. Omachi 2

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 was analyzed over the 16-week-inhaled corticosteroid-stable dose phase of the studies. Effects of OMA on exacerbations relative to peripheral blood eosinophil counts (<300/μL[low] vs ≥300/μL[high]), use of long-acting beta agonists (LABAs), steroids, prior hospitalizations for asthma, or higher blood eosinophil counts, have a better response to OMA.

Results Exacerbations were reduced 53% with OMA vs placebo (95% CI, 33 –68; P=0.008) compared with 47% not receiving OMA. Additionally, there were fewer deaths in the pirfenidone group (1/34 [ 2.9%]) in the pirfenidone group among patients with a ≥10% decline in percent predicted forced vital capacity (%FVC) or death (2/34 [5.9%] vs 26/68 [38.2%]).

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

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