hyperresponsiveness exit prior to challenge Ach in the group of early response to β2-agonist after the provocation test.

322 Preoperative Cardiopulmonary Exercise Testing (CPET) in Severe Asthma Patients
Ekaterini Syrigou,1 Anastasios Kallianos,2 Sotirios Tsimpoukis,2 Nektaria Makrilin,2 Ioannis Danno,2 Fotis Psiros,1 and Kostas N. Syrigos.2

Background: Lung resection is still the only potentially curative therapy for patients with localised non-small lung cancer (NSCLC). However, the presence of cardiovascular comorbidities and pulmonary function impairment increase the risk of perioperative death and postoperative complications. Various studies have evaluated the use of different preoperative tests aiming to identify asthma patients at greater risk for complications.

Methods: A literature search was performed in PubMed to identify relative studies published until June 2011.

Results: Postoperative complications are associated with prolonged hospital stays and excessive morbidity and mortality especially in this group of patients. According to the ACCP/BTS guidelines, patients without known underlying lung disease with a preoperative FEV1 in excess of 2 L, generally tolerate pneumonectomy whereas those with FEV1 greater than 1.5 L, tolerate lobectomy. Although spirometric values strongly correlate with the severity of obstruction, they do not provide direct information regarding the degree of gas exchange impairment or the status of cardiovascular function. Cardiopulmonary exercise testing (CPET) is a preoperative test suggested before lung resection in patients with known underlying cardiovascular or lung disease. It is based on the interactions among pulmonary function, cardiovascular function and oxygen absorption from the peripheral tissues. Patients with maximal oxygen consumption (VO2 max) <10 mL/kg/min or those with VO2 max < 15 mL/kg/min and both postoperative predicted FEV1 and DLCO <40% are considered to be at high risk of perioperative death and cardiopulmonary complications postoperatively. Studies have shown that oxygen uptake efficiency slope, oxygen pulse and heart rate at peak exercise are correlated with better postoperative outcome.

Conclusions: Further research is required to elucidate the role of CPET in the preoperative evaluation of this group of patients.

323 Annual Change of Peak Expiratory Flow Rate in Asthma and COPD
Kwang H. A. Yoo, MD, PhD, and Kye Young Lee, MD, PhD.

Background: Peak Expiratory Flow Rate (PEFR) is a useful measurement for the follow-up examination in a chronic airway disease because it has the advantage of simple measuring and repetitive examination. The aim of this study is to examine the annual decrease of PEFR in asthma and COPD patients and to confirm the factors which influence the annual decreasing rate of PEFR.

Methods: From May, 2003 to September, 2010, the annual decreasing rate of PEFR is obtained from the asthma and COPD patients attending an outpatient pulmonary clinic. PEFR was measured using Mini-Wright (Climente Clarke International Ltd. UK). We conducted an analysis of the factors to influence on the change of PEFR and the average of it.

Results: The result indicated decrease of 3.72 ± 12.55 L/min annually in the asthmatic patient and decrease of 8.69 ± 8.87 L/min annually in the COPD patient. In the asthma, age and FEV1 are the predictive factor to influence on the change, on the other hand, age, FEV1, smoking and the number of aggravation are the factors in the COPD.

Conclusions: We could confirm the annual decreasing rate in patients of chronic airway disease and similar factor with FEV1 to influence on the change.

324 Evaluation of Chest Computed Tomography in Patients with Asthma
Fernanda Guerra Montenegro, MD,1 Ana Priscia Castro-Coelho, MD,1 Carla Bisacione, MD,2 Marcelo Vivolo Aun, MD,1 Jorge Kalil, MD, PhD,1 Pedro Giavina-Bianchi, MD, PhD,3 and Rosana Camara Agondi, MD, PhD.1,3

Background: Asthma is an inflammatory disease of the airways. The pathophysiological effects of airway obstruction include air trapping and dynamic hyperinflation. The investigation of asthma is usually performed through pulmonary function tests. The assessment of asthma by radiological methods is required to rule out other causes of bronchospasms or out complications. The aim of this study was to evaluate the changes found in the chest computed tomography (CT) in patients with persistent asthma.

Methods: Sixty-nine patients of both genders and above 18 years of age, accompanied by persistent asthma, participated in the study. The charts were analyzed for severity and onset of symptoms of asthma, spirometry, search of specific IgE and chest tomography.

Results: The mean age was 55.7 years, 71% female. Asthma began in childhood in 55.8% of patients. All patients had persistent asthma, divided into 66.7% of severe asthma, 29% moderate and only 4.3% mild. Only 14.5% of spirometry was normal. Atopy, assessed by clinical history and research of specific IgE was observed in 75.8% of patients. Regarding CT scans of the chest, the primary findings were bronchial wall thickening in 70% of patients, nodules in 25%, and atelectasis in 25%. The bronchiecasis was present in 20% of CT scans of the chest, and signs of emphysema in 10% of them.

Conclusions: In this trial, the CT scans of the chest were primarily indicated for patients with severe persistent allergic asthma. Bronchiectasis was found in 20% of tests, suggesting that CT scan of the chest should be required for patients with partial response to conventional treatment, mainly in patients with severe asthma.

325 Exercise-induced Airway Obstruction and Vitamin D Deficiency
Davide Varenni, MD,1 Enrico Heffler, MD,2 Martina Papurello, MD,1 Beatrice Culla, MD,1 Luisa Brussino, MD,3 Giuseppe Guida, MD,3 Caterina Bucca, MD,1 and Monica Masero, MD,1

Background: Exercise-induced (EI) symptoms may be associated with bronchospasm (EI-B), or laryngospasm, that is a paradoxical VC adduction (VCD) mimicking asthma. We previously found that vitamin D deficiency (Ddef) favours the occurrence of VCD during hyperventilation test (HV), particularly in hypocapnic conditions. We evaluated the occurrence of EI-B and EI-VCD during HV in relationship with Ddef, in 37 non-smoking young athletes (24 males, 13 females, age: 13–25 years).

Methods: Each subject underwent HV (5 runs of one minute) either in isocapnia (HViso, obtained breathing CO2 enriched air) or in hypocapnia (HVhyp, obtained breathing normal air) in randomized order, one week apart. Exhaled CO2 pressure was controlled breath by breath by a capnograph. A 10% decrease in FEV1 was used as EI-B marker, a 25% decrease in MIF50 as EI-VCD marker.