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Title: LSC 2013 abstract - Serum YKL-40 is increased in children with bronchopulmonary dysplasia compared to children with asthma

Anna James [1], Jon Konradsen [2,3], Björn Nordlund [2,3], Christina Ebersjö [4], Eva Berggren Boström [4], Ewa Henckel [2], Sven-Erik Dahlén [1] and Gunilla Hedlin [2,3]. [1] Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden ; [2] Astrid Lindgrens Childrens Hospital, Karolinska University Hospital, Stockholm, Sweden ; [3] Department of Womens and Childrens Health, Karolinska Institutet, Stockholm, Sweden and [4] Department of Paediatrics, Södersjukhuset, Stockholm, Sweden .

Body: Introduction: Bronchopulmonary dysplasia (BPD) caused by prematurity is associated with more remodeling and fibrosis than asthma, yet symptoms and treatment of these two disorders are similar. The chitinase-like protein YKL-40, is a novel biomarker of asthma although the mechanisms involved are unknown. YKL-40 levels correlate with airway remodeling (Chupp et al. NEJM 2007) and YKL-40 increases smooth muscle proliferation (Bara et al. AJRCCM 2012). We aimed to compare serum YKL-40 in children with asthma and BPD. Methods: Age- and sex-matched children with diagnosed asthma (n=27) or BPD (n=28) were included in the study at 10 yrs of age. Serum YKL-40 levels were measured by ELISA.

Results: YKL-40 was higher in children with BPD compared to asthma, fig 1, whereas FEV1 (%pred) was reduced in BPD (77.1 vs 84.1, p=0.03). Patients with high YKL-40 (upper quartile mean 17.5 ng/ml) had a lower FEV1 than those with low YKL-40 (lower quartile mean 11.5 ng/ml), (73% vs 85%, p<0.007). YKL-40 was higher in children who received continuous positive airway pressure (CPAP) for >1 month than those with CPAP treatment for <1 month. Conclusion: Serum YKL-40 levels are increased in BPD and relate to lung function and BPD severity suggesting that YKL-40 may be involved in airway remodeling and fibrosis.