Pulmonology

O-110 EFFECT OF PRETERM BIRTH ON ADULTHOOD LUNG FUNCTION: FINNISH BIRTH REGISTRY AND CLINICAL FOLLOW-UP STUDY

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Background Preterm birth and maternal gestational disorders may adversely impact the pulmonary health of offspring.
Aims To examine whether exposure to common conditions during fetal-life (preterm birth, gestational hypertension, gestational diabetes) predicts poorer lung function in young adults.
Methods The ESTER study is a case-control cohort study of individuals born in Northern Finland 1985–89. Study design has two parts: 1) preterm birth included 139 early preterm (<34 weeks) and 239 late preterm (34- <37 weeks) birth subjects; 2) maternal pregnancy disorder included 154 subjects exposed to maternal gestational diabetes (GDM), 136 to pre-eclampsia (PE) and 179 to gestational hypertension (GH). Control group sizes varied. At mean age of 23.5y (±1.7), participants underwent a detailed clinical study including spirometric measurement of FVC, FEV1 and FEV/FVC%, as % from predicted.
Results Participants born preterm had similar FVC but poorer airflow than term-born. This difference was seen among early and late preterm births (Table1), although for the late preterm, significant only in preliminary models.

Lung function in individuals exposed to PE was lower, but this difference disappeared by adjusting for gestational length. Maternal GH or GDM were unrelated to lung function (Table 2).

Abstract O-110 Table 1 Mean difference (% unit, 95% CI) in lung function in young adults born early and late preterm against term against term born controls

Lung function	<34wks	34-37wks
FVC	-7.6 (-13.3 to -2.0)	-2.6 (-5.8 to 0.7)
FEV	-5.5 (-11.4 to 0.4)	-1.7 (-5.1 to 1.8)
FEV/FVC%	1.5 (-2.3 to 5.4)	0.7 (-1.5 to 2.9)

Adjusted for Age, Sex, Height, BMI, parental education (basic, secondary, lower tertiary, upper tertiary, maternal smoking during pregnancy, Self-reported physical activity, smoking, birth z-score, and length of gestation

Conclusion Shorter gestation and fetal-life conditions are likely to have long-lasting impacts on lung function: preterm-born individuals are likely to experience increased airway obstruction.

Abstract O-110 Table 2 Mean difference (% unit, 95% CI) in lung function between young adults exposed to GDM, PE and CH vs. Controls

Variable	GDM (N=469)	PE (N=700)	GH (N=700)
FVC	-1.1 (-3.3 to 1.2)	-0.5 (-2.9 to 1.9)	0.2 (-1.9 to 2.3)
FEV	-1.4 (-3.7 to 0.9)	-0.8 (-3.2 to 1.7)	0.6 (-1.6 to 2.7)
FEV/FVC%	-0.3 (-1.7 to 1.1)	-0.2 (-1.7 to 1.3)	0.3 (-1.0 to 1.7)

Adjusted for Age, Sex, Height, BMI, parental education (basic, secondary, lower tertiary, upper tertiary, maternal smoking during pregnancy, Self-reported physical activity, smoking, birth z-score, and length of gestation.

Even late preterm birth (majority of preterm births), can increase the risk of poor pulmonary outcome. Preeclampsia may have similar effects, adding to the fetal origins of poor pulmonary health. This could be counterbalanced by physical excercise.

O-111 A GENOME-WIDE ASSOCIATION STUDY OF VARIANTS ASSOCIATED WITH GENETIC SUSCEPTIBILITY TO SEVERE BRONCHIOLITIS

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Background and aims Respiratory syncytial virus (RSV) bronchiolitis is the primary cause of hospital admission among children under two years and it is considered to be a risk factor for developing asthma later in life. Although some genetic variants associated with bronchiolitis have been identified by candidate gene studies, the genetic background of the disease is not well understood. Here, we aimed to identify genetic polymorphisms conferring susceptibility to severe bronchiolitis and subsequent asthma.
Methods
Case-control discovery cohorts with 94 cases of severe bronchiolitis and 94 controls collected in Finland and Sweden were genotyped with Illumina HumanOmniExpress BeadChip containing 700.000 SNPs. Replication population of 130 cases and 250 controls collected in Finland is being genotyped with HumanCoreExome BeadChip containing 500.000 SNPs. Respiratory outcomes of all the cohorts have been followed-up to 5–30 years of age. Association signals are further analysed in appropriate functional studies.
Results In the discovery data set, several signals indicating association with bronchiolitis were identified. As an example, SNPs within *ADAR* (adenosine deaminase, RNA-specific) and *KLRK1* (killer cell lectin-like receptor subfamily K, member 1) genes involved e.g. in immune responses showed suggestive associations (p-value $\leq 10^{-4}$). Some of the SNPs previously reported to be associated with bronchiolitis showed weaker signals.
Conclusions We found suggestive association signals for several SNPs. Associations observed both in the discovery population and in the replication cohort are regarded as plausible candidates for further studies. The most promising candidate genes will be analysed in functional studies to verify their potential role in bronchiolitis.

Screening/Pain

O-112 THE INDICATORS IN THE BIOCHEMICAL PHENOTYPE OF 58 INFANTS WITH HEPATORENAL TYROSINEMIA

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Hepatorenal Tyrosinemia (HRT, OMIM 276700) is an autosomal recessive inborn error of metabolism which mainlyaffects