Projects beginning in 2004

2004/001

The changing prevalence of asthma and chronic obstructive airway disease in Australia

Aims

Our aims are to conduct a new cross-sectional survey of a random sample and of families from the Busselton population and use these data together with extant, longitudinal data to:
1. determine the prevalence of respiratory symptoms, tobacco smoking, asthma, COPD, chronic bronchitis, atopy, and airway hyper-responsiveness to methacholine, for comparison with previous studies;
2. estimate age, period and cohort (APC) effects on asthma, COPD and their intermediate phenotypes;
3. determine the prevalence of airway inflammation by exhaled nitric oxide (eNO) and examine how this measurement relates to the diagnosis of asthma or COPD and their intermediate phenotypes;
4. investigate the familial aggregation and interrelationships of asthma, COPD and associated phenotypes (including atopy, bronchial hyper-responsiveness, rhinitis and eNO) in families from Busselton and collect material for separate molecular genetic analysis;
5. provide improved phenotypic descriptions of asthma, COPD and associated traits for genetic association studies;
6. determine the association between serological evidence of Chlamydia pneumoniae infection and COPD in the Busselton population.

Investigators

- Clin Prof Bill Musk, Dept of Respiratory Medicine, SCGH
- Dr Alan James, Dept of Pulmonary Physiology, SCGH
- Dr John Beilby, PathCentre
- Prof Lyle Palmer, WAIMR
- Prof Matthew Knuiman, School of Population Health, UWA

Project status

In progress

2004/002

The association of genetic and environmental factors with asthma, allergy and decline in lung function
Aims

In the proposed study, we seek to investigate the determinants of the development of both asthma and impaired lung function in a homogeneous and stable Australian cohort. We further hypothesize that there is overlap between the genetic determinants of asthma and decline in lung function, and that some genes will interact with tobacco smoking to contribute to accelerated decline in lung function. We have already collected extensive longitudinal phenotypic information and DNA on a large sample of subjects from Busselton as part of the ongoing Busselton Health Surveys. To investigate these novel hypotheses, we will address the following specific aims in a general population sample:

1. To test whether single nucleotide polymorphisms (SNPs) within positionally cloned susceptibility genes for asthma are associated with longitudinal decline in lung function in the general population and in asthmatics.
2. To test whether SNPs within candidate genes with strong evidence of involvement in the pathways of asthma and/or impaired lung function pathogenesis are (a) associated with an accelerated decline in lung function in the general population and in asthmatics, and (b) associated with asthma in the general population.
3. To test whether asthma or decline in lung function are associated with: (a) gene:environment interactions between any of the genes investigated and tobacco smoking, i.e. whether any of the genes investigated are associated with the development of smoking-related airflow obstruction. (b) gene:gene interaction between any of the genes investigated.
4. In secondary analyses, to test the association of the genes investigated with cross-sectional outcomes surveyed in 1994: skin prick reactivity to common aeroallergens, lung function and airway responsiveness to methacholine.

Investigators

- Prof Lyle Palmer, WAIMR
- Dr Alan James, Dept of Pulmonary Physiology, SCGH
- Clin Prof Bill Musk, Dept of Respiratory Medicine, SCGH
- Dr John Beilby, PathCentre

Project status

Awaiting funding

2004/003

The Asia Pacific Cohort Studies Collaboration. Risk prediction models

Investigators

- Mark Woodward, The George Institute, University of Sydney
The forced oscillation technique (FOT) in normal and asthmatic subjects from the Busselton Population Studies: Response to bronchodilator

Aims

We wish to contact subjects who were studied in 1994 in the Perth Metropolitan Area and who are non-smokers and have a history of asthma but no other respiratory illness and are otherwise well. We are seeking subjects from early adulthood onward with a view to establishing normal values for forced oscillation measurements of the mechanical properties of the lung, before and after bronchodilator. The eventual aim in a multi-national collaborative study is to develop reference values for adults for this test.

Investigators

- Dr Alan James, Dept of Pulmonary Physiology, SCGH
- Prof Peter Sly, ICHR
- Zoltan Hantos, ICHR
- Clin Prof Bill Musk, Dept of Respiratory Medicine, SCGH
- David Hillman, Dept of Pulmonary Physiology, SCGH

Association studies of genetic susceptibility for asthma and atopy in developed countries - a comparison between different populations

Investigators

- Dr John Beilby, PathCentre
- Dr Jennie Hui, WAIMR
- Prof Lyle Palmer, WAIMR
- Clin Prof Bill Musk, Dept of Respiratory Medicine, SCGH
- Dr Alan James, Dept of Pulmonary Physiology, SCGH
• A Oka
• Professor Hidetoshi Inoko

Project status
Yet to commence

**2004/006**

**Hepatic and metabolic related outcomes among patients with unexplained raised liver enzymes**

Investigators

• Dr Leon Adams
• Prof Matthew Knuiman
• G Jeffrey
• Prof John Olynyk

Project status
In progress