Projects beginning in 1999

1999/001

Identification of genetic factors that play an important role in the development of obesity

Aims

1. To determine if there is an association between peroxisome proliferator activated receptor g (PPARg), agouti-related transcript (ART), neuropeptide Y (NPY) and its receptors NPY, Y5R and Y6R, pro-opiomelanocortin (POMC), uncoupling protein 2 (UCP2), melanocortin-4 receptor (MC4R) and obesity.
2. PCR of microsatellites regions within areas of suspected linkage will be used to identify candidate gene loci using affected sib pairs.
3. Genes showing linkage will be studied for polymorphisms using denaturing gradient gel electrophoresis (DGGE) and sequencing.
4. The prevalence of each polymorphism will be studied in the obese case-control population and its association with increased BMI and CHD determined.

Investigators

- Dr John Beilby, PathCentre
- Dr Caroline Chapman, PathCentre
- Dr Michael Swarbrick

Project status

Completed

Publications


1999/003

A case-cohort study of new risk factors for cardiovascular diseases in Busselton

Aims
The aim of this project is to conduct a case-cohort study investigating new risk factors for cardiovascular disease using baseline data, stored sera, and follow-up data that have been collected on participants in the Busselton Health Study (BHS). The new risk factors under investigation are Chlamydia pneumoniae (CP), Helicobacter pylori (HP) and Cytomegalovirus (CMV) infection, remnant-like particle cholesterol (RLP-cholesterol), homocysteine, and serum ferritin. These will be investigated in relation to both coronary heart disease (CHD) and stroke.

The hypotheses are:

- Prior CP, HP or CMV infection, indicated by the presence of IgG and IgA antibodies against these pathogens, singly and in combination, are risk factors for CHD and stroke.
- The level of serum RLP-cholesterol is an independent risk factor for coronary heart disease and stroke.
- Serum homocysteine is an independent risk factor for CHD and stroke.
- Serum ferritin is an independent risk factor for CHD and stroke.

Investigators

- Prof Matthew Knuiman, School of Population Health, UWA
- Assoc Prof Gerald Watts, Dept of Medicine, UWA
- Dr Katie Coles, School of Population Health, UWA

Project status

Completed

Publications


Continuing epidemiological analyses of respiratory diseases in Busselton.

Aims

The aim of this project is to investigate epidemiological aspects of respiratory conditions using repeated cross-sectional and follow-up data collected over the period 1966 to 2000 on participants in surveys in Busselton, Western Australia. The proposed analyses build on previous successful research on respiratory diseases in Busselton. The research topics and the specific hypotheses are:

Increasing prevalence of asthma
(a) The observed increasing prevalence of asthma parallels increases in wheeze and hayfever but there were no parallel increases in atopy or airway responsiveness.
(b) The observed increasing prevalence in asthma in adults is more pronounced in those under 40 years of age, cannot be explained by particular (birth) cohort effects, and is only partly explained by changes in diagnosis patterns.

Decline in lung function and COPD
(a) Decline in lung function (obtained from repeated measurement in individuals) is an additional useful marker of lung health beyond a single FEV1 measure (even if expressed as a percent of predicted normal value based on age and height).
(b) Decline in lung function during adulthood accelerates with increasing age.
(c) Decline in lung function is associated with peak FEV1, airway responsiveness, asthma, smoking, respiratory symptoms, atopy, cardiovascular disease, white cell count, and birth cohort.
(d) Age, lung function, asthma, smoking and respiratory symptoms are predictive of development of COPD.

Snoring and sleep apnoea
(a) Overweight, recent weight gain, upper airway dimensions, smoking, heavy alcohol intake, respiratory illness, cardiovascular disease and the use of sedative medications are risk factors for snoring and sleep apnoea.
(b) The effects overweight, weight gain and upper airway dimensions have stronger associations with snoring and sleep apnoea in women.
(c) Snoring is an independent risk factor for hypertension.

Passive smoking (spousal)
(a) The decline in husband-wife correlation in lung function with increasing marriage duration will be explained (or even reversed) after controlling for smoking habits, asthma and respiratory symptom.
(b) Passive smoking (via spouse) will be a significantly related to respiratory events, lung function and decline in lung function in non-smoking spouses of individuals who smoke.

Investigators

- Prof Matthew Knuiman, School of Population Health, UWA
Clin Prof Bill Musk, Dept of Respiratory Medicine, SCGH
Dr Alan James, Dept of Pulmonary Physiology, SCGH
Dr Gerry Ryan, Dept of Medicine, UWA

Project status
In progress

Publications


1999/007

Impact of Busselton Health Studies on cardiovascular mortality and morbidity rates

Aims

1. To gather population, mortality and hospital morbidity data for the Shire of Busselton and the South-West of Western Australia.
2. To evaluate the impact of the Busselton Health Study program of activities on cardiovascular mortality rates over the period 1965-1998 in the Shire of Busselton by comparison with the remainder of the South-West of WA.
3. To see if the gender-difference in the impact on cardiovascular mortality rates observed in an earlier mortality evaluation has continued.
4. To evaluate the impact of the Busselton Health Study program of activities on cardiovascular hospital admission rates over the period 1975-1997 in the Shire of Busselton by comparison with the remainder of the South-West of WA.
5. To communicate the findings of this evaluation back to the Busselton community and to disseminate the findings more widely in a peer-reviewed journal.
Investigators

- Prof Matthew Knuiman, School of Population Health, UWA
- Dr Jo Clarkson, School of Population Health, UWA

Project status

Completed

Publications


1999/008

Cardiovascular disease risk factors in the elderly

Aims

1. To measure, compare and contrast risk factor-CVD associations in independent cohorts of middle-aged and elderly people, and thereby to ascertain the suitability of risk scoring systems developed from middle-aged cohorts for use in elderly cohorts. The risk factors considered will include plasma glucose and C-reactive protein as well as a measure of the metabolic syndrome.

2. To use repeated measures of risk factors in individuals over periods of 5 to 25 years to track risk factor measures into old age and to determine the relative predictive power of risk factor values measured at various ages.

3. To compare the predictive power of risk factors in people with and without existing CVD, and to incorporate the predictive power of CVD history, comorbidity, surgical interventions and drug therapy into scoring systems.

4. To develop and validate new multivariate CVD risk assessment methods for use in contemporary elderly Australians for people with and without pre-existing cardiovascular disease.

Investigators

- Prof Matthew Knuiman, School of Population Health, UWA
- Assoc Prof Joseph Hung, School of Medicine and Pharmacology, UWA
- Prof Tim Davis, School of Medicine and Pharmacology, UWA
- Dr John Beilby, Department of Clinical Biochemistry, PathCentre
Project status

In progress

1999/014

Meta-analysis of rheological factors and coronary heart disease

Investigators

- Dr John Danesh, PSC collaboration
- Prof Rory Collins, PSC collaboration
- Prof Richard Peto, PSC collaboration
- Dr Gordon Lowe, PSC collaboration

Project status

Completed

Publications


1999/015

The prevalence of coeliac disease and investigation of iron deficiency in a normal community cohort

Aims

Aim 1: Measure the prevalence of Coeliac Disease in an Australian community, by using serum anti-endomysial antibodies as a screening test, and proceeding to endoscopic duodenal biopsy in those who are positive. In those who are diagnosed with Coeliac Disease we will be able to analyse data regarding Body Mass Index, history of fractures and incidence of diabetes to address whether any of these are correlates, as has been reported in other population studies.
Aim 2: Measure the prevalence of Coeliac Disease in a group who have been recognised as being iron-deficient. By comparing to age- and gender-matched controls, a relative risk of having Coeliac Disease if iron deficient will be estimated.
Aim 3: Provide information regarding the natural history of iron deficiency in a non-hospitalised population, by performing follow-up studies 5 years after
the bloods were taken.
Our hypothesis is that the true prevalence of Coeliac Disease in an otherwise healthy Australian population is much higher than previous estimates quoted in the literature, which have mainly been arrived at through case acquisition. We also hypothesise that it will be an important causative factor in those subjects with persistent iron deficiency.
The significance of this study is that if Coeliac Disease is indeed more common in our community than currently appreciated, it is important to raise community and doctor awareness of this, because it is so easily treated, and successful treatment can avoid potential complications such as anaemia, ostopenia and also the small but increased risk of malignancy.

Investigators

- Dr Judith Collett, Dept of Gastroenterology, Fremantle Hospital
- Dr Digby Cullen, Dept of Gastroenterology, Fremantle Hospital
- Dr Chris Hovell, Dept of Gastroenterology, Fremantle Hospital
- Dr D F Mallon, Dept of Immunology, Fremantle Hospital
- Adrian Griffiths, Dept of Gastroenterology, Fremantle Hospital

Project status

In progress

Publications