

**P2-15 GENETIC POLYMORPHISMS OF INNATE IMMUNITY-RELATED INFLAMMATORY PATHWAYS AND THEIR ASSOCIATION WITH FACTORS RELATED TO TYPE 2 DIABETES**

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**Introduction** Type 2 diabetes mellitus (T2DM) has been linked to a state of chronic inflammation due to innate immunity. Serum levels of pro-inflammatory cytokines are elevated in the early stages of T2DM and increase with disease progression. Genetic variation can affect the innate immune response to environmental factors, and may determine an individual's risk of disease.

**Methods** We conducted a cross-sectional study in 7384 subjects from the TwinsUK Registry to evaluate the association between 18 single nucleotide polymorphisms (SNPs) in five genes (TLR4, IL1A, IL6, TNFA, and CRP) along the innate immunity-related inflammatory pathway and biomarkers of predisposition to T2DM [fasting insulin and glucose, HDL- and LDL- cholesterol, triglycerides (TGs), amyloid-A, sensitive C reactive protein (sCRP) and vitamin D binding protein (VDBP) and body mass index (BMI)].

**Results** Of the 18 SNPs examined (18 SNPs with 9 phenotypes), 14 were significantly associated with a metabolic risk factors for T2D (P<0.0027). Fasting insulin was associated with SNPs in IL6, TLR4 and TNFA, whereas serum LDL-C was associated with variants of IL1A and IL6. Serum CRP level was associated with SNPs in IL1A, IL6, TLR4 and CRP. Correlation among the different factors related to risk of T2DM showed a significant (p<0.0001) positive correlation between BMI and glucose (r=0.22), insulin (r=0.23), amyloid-A (r=0.23), sCRP (r=0.37), LDL-C (r=0.09) and TGs (r=0.32).

**Conclusion** Genetic variants in the innate immunity pathway are associated with biomarkers of T2DM and metabolic syndrome, an observation that may provide a rationale for studying their use in early disease risk prediction.

**P2-16 HIGH BURDEN OF RHEUMATIC DISEASES IN A POPULATION BASED STUDY FROM LEBANON**

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**Introduction** Rheumatic diseases are among the most prevalent chronic diseases worldwide. Knowledge of their epidemiology remains scarce especially in western Asia and their recognition is still insufficient. We conducted a national study to estimate the prevalence of rheumatic diseases in Lebanon and to explore their distribution by geographic location, age, and gender.

**Methods** Using the Community Oriented Program for the Control of Rheumatic Diseases methodology, a random sample of 3530 individuals aged ≥15 years was interviewed. Positive respondents were evaluated by rheumatologists using the criterion of the American College of Rheumatology for the diagnosis of rheumatic diseases.

**Results** Prevalence rates of current and past musculoskeletal problems were 24.4% and 8.4% respectively. Shoulder (14.3%), knee (14.2%), and back (13.6%) were the most common pain sites. Point prevalence of rheumatic diseases was 15.0%. The most frequent types of rheumatic diseases were of mechanical origin, namely soft tissue rheumatism

(5.8%) and osteoarthritis (4.0%). Rheumatoid arthritis (1.0%) and spondylarthropathies (0.3%) constituted the most common inflammatory diseases. Coastal areas had the lowest prevalence of all diseases except for fibromyalgia. All diseases showed an increasing prevalence pattern with age and a higher prevalence among females than males.

**Conclusion** This is the first population based study on rheumatic diseases in Lebanon. The high burden calls for public and political attention for early detection, control and prevention. Point prevalence of individual diseases was within the range of results from other Community Oriented Program for the Control of Rheumatic Diseases surveys with some variations that can be attributed to differences in methodology and geo-ethnic factors.

**P2-17 THE PREVALENCE OF METABOLIC SYNDROME AND RELATED FACTORS IN ÇANKAYA PROVINCE OF ANKARA, TURKEY**

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**Introduction** The morbidity of metabolic syndrome (MS), which is composed of several interrelated metabolic risk factors, increases as the obesity increases. It is a condition of multiple metabolic risk factors which share the common etiopathogenesis of cardiovascular diseases and type 2 diabetes.

**Methods** The study was cross-sectional, and the study sample consisted of 961 participants above the age of 15 living in the households which were selected by 1/200 systematic random sampling method between 2000 and 2004. A questionnaire was administered to the participants, and blood pressure, fasting blood glucose, total cholesterol, triglyceride and lipoprotein levels were measured, and body mass indexes of the participants were calculated. For the definition of metabolic syndrome, the WHO's criterias were used. The test of  $\chi^2$  and multivariate logistic regression analysis was used in statistical analyses. The differences were considered to be statistically significant at p<0.05.

**Results** The MS prevalence was found to be 13.5%, and it changed significantly according to age, marital status, educational level, and job. Smoking, systolic and diastolic hypertension, elevated total cholesterol, LDL, and VLDL, caused the prevalence to increase significantly. According to the results of multivariate logistic regression analyses, the age above ≥45, total cholesterol HDL ratio above 5, the elevated total cholesterol, VLDL, and blood pressure were found to be the determinants of MS.

**Conclusion** To control metabolic syndrome, the implementation of prevention programmes including healthy life style such as encouraging healthy nutrition, physical activity, and control of blood pressure should be achieved.

**P2-18 WHOLE GRAIN CONSUMPTION AND THE RISK OF COLORECTAL CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS OF COHORT STUDIES**

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**Introduction** Several case-control studies have suggested inverse associations between whole grain intake and colorectal cancer risk, but few cohort studies have been published on the subject. As part of the Continuous Update Project of the World Cancer Research Fund we conducted a systematic review and meta-analysis of whole grain intake and colorectal cancer risk.

**Methods** We searched the Pubmed database for prospective cohort and nested case-control studies of whole grain intake and risk of incident colorectal cancer, up to December 2010. Summary RRs were calculated using a random effects model.

**Results** Seven cohort studies reported results for total whole grain intake and colorectal cancer risk. The summary RR for high vs low intake of whole grain was 0.79 (95% CI 0.72 to 0.86), with no significant heterogeneity,  $I^2=0\%$ . The summary RR for a 3 servings per day increment was 0.81 (95% CI 0.75 to 0.88), with little heterogeneity,  $I^2=15\%$ . A similar reduction in risk was also found for colon cancer (summary RR=0.81, 95% CI 0.70 to 0.95,  $I^2=0\%$ ), but the result for rectal cancer was not statistically significant and there was substantial heterogeneity (summary RR=0.75, 95% CI 0.53 to 1.08,  $I^2=87\%$ ).

**Conclusion** Our results support the hypothesis that whole grain consumption protects against colorectal cancer.

## P2-19 MOBILE PHONE USE AND LOCATION OF GLIOMA: A CASE-CASE ANALYSIS

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**Introduction** The risk of brain tumours related to mobile phone use has been assessed in several studies without conclusive results. As the radiofrequency field emitted by the phone depends strongly on the distance from the source, any effect should be highly localised and occur mainly in the part of the brain absorbing most of the energy. We assessed the distance from the exposure source (typical location of mobile phone when in use) and the mid-point of the glioma recorded in blinded fashion from radiologic images.

**Methods** A total of 888 cases aged 18–69 years from seven European centers (Denmark, Finland, Germany, Italy, Norway, Sweden and UK) of the international collaborative Interphone study were included. Information on mobile phone use was obtained from interviews. Unconditional logistic regression was used with distance <5 cm between tumour and mobile phone location (line from the corner of the mouth to the ear) as the outcome.

**Results** Majority of the gliomas were located in frontal and temporal lobes in both regular mobile phone users and never regular users of mobile phones (43% vs 37% in frontal and 30% vs 28% temporal lobe). The proportion of tumours with a distance <5 cm between the putative source of exposure and mid-point of glioma was 22% among regular users (mean 6.3 cm) and 24% among non-users (mean 6.2 cm). Cumulative call-time (hours) and duration of use (years) were not associated with proximity of tumours to the source of exposure.

**Conclusion** Tumour location is unaffected by mobile phone use.

## P2-20 WITHDRAWN

## P2-21 ETHNIC INEQUALITIES IN MYOCARDIAL INFARCTION INCIDENCE, INTERVENTIONS AND SURVIVAL IN SCOTLAND: THE SCOTTISH HEALTH AND ETHNICITY LINKAGE STUDY (SHELS)

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**Introduction** Ethnic variations in coronary heart disease are large with a 50–70% excess consistently observed in South Asians. It is

not clear whether this is attributable to increased incidence, poor survival, or both. We compared incidence and outcome of first acute myocardial infarction (AMI) by ethnic group in Scotland in relation to cardiac intervention uptake, socioeconomic factors and proximity to hospital.

**Methods** We used linkage methods to combine ethnicity data from those aged  $\geq 30$  years of age in the 2001 Scottish Census with records of subsequent hospital discharges and deaths between 1 May 2001 and 30 April 2008. We compared incidence (death or discharge) and case fatality following first AMI by ethnic group using the White Scottish as the standard comparison population.

**Results** AMI incidence rates were highest among Pakistani and lowest for Chinese, Other White British and Other White ethnic groups. Adjustment for highest educational qualification attenuated differences between White Scottish and other White groups but did not fully explain the excess in the Pakistani group. Pakistani women had lower HRs for death after AMI partly explained by shorter travel time to hospital. We found no evidence for lower uptake of cardiovascular procedures in Indians and Pakistanis.

**Conclusions** The known elevated coronary heart disease risk in South Asians principally reflects increased incidence in Pakistanis emphasising the need for aggressive management of modifiable cardiovascular risk factors. Pakistani women were protected from case fatality in part by their closer proximity to hospital and not increased uptake of interventional procedures.

## P2-22 IS CESAREAN SECTION ASSOCIATED WITH AN INCREASED RISK FOR OBESITY AT ADULTHOOD? A BRAZILIAN COHORT STUDY

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**Introduction** Obesity is worldwide epidemic and increase in cesarean section rates have occurred in parallel. Overweight children had a lower proportion of the genus *Bifidobacterium spp.* in their intestinal microflora during infancy. Infants born by cesarean section have less *Bifidobacterium spp.* as predominant microbiota.

**Objective** we hypothesised that infants born by cesarean section are more likely to develop obesity in adulthood.

**Methods** We carried out a newborn cohort study in Ribeirão Preto, Brazil, started in 1978. A randomised sample of 2057 subjects from the original cohort (6827 individuals) was reassessed in 2002. Some co-variables were collected after birth: type of delivery, birth weight, maternal smoking and maternal schooling. The data from subjects were obtained at the time of their return for evaluation at 24 years of age: body mass index (BMI), physical activity, subject smoking, and income in minimum wages. Obesity was considered when BMI  $\geq 30$ . A Poisson multivariable model was performed aiming to determine the impact of cesarean section on BMI at adulthood. The model was adjusted for subject and maternal factors.

**Results** The rates of obesity in young adults born by cesarean section was 15.2% vs 10.4% in those born by vaginal delivery ( $p=0.002$ ). Subjects who were born by cesarean section had an increased significant risk [1.57 (1.23–2.02)] for obesity at adulthood after controlling.

**Conclusion** We may hypothesise that the differences in intestinal flora related to type of delivery section may have a role on the epidemic obesity worldwide.