

Studies that link obesity to poor PF have typically been cross-sectional, limited to two time-points or relied on retrospectively recalled height and weight. We aimed to establish associations between PF at age 50y and i) birthweight and BMI across the life-course; ii) BMI gains at specific life-stages and iii) age of obesity onset.

Methods The 1958 birth cohort includes all born in one week, in March 1958, across Britain. BMI (kg/m²) was calculated (N=4,173 (males); 4,501 (females)) using height and weight measured at school (7, 11, 16y), in participant's homes (33, 45y) or self-reported (23, 50y). PF at 50y was assessed via postal questionnaire using the validated PF subscale of the Short-form 36 (SF-36) survey. The lowest sex-specific 10th centile were defined as poor PF. Missing data was imputed via multiple imputation. Associations were examined using logistic regression, adjusting for social class, education and health behaviours.

Results Birthweight was not associated with PF. At each adult age, odds of poor PF were highest for obese (vs normal) e.g. for 23y obesity the OR_{adjusted} for poor PF was 2.28 (1.34,3.91) and 2.67(1.72,4.14) in males and females respectively. BMI gains from adolescence were related to poor PF, e.g. for females, OR_{adjusted} per SD in BMI gain between 16–23y was 1.28(1.13,1.46); for BMI gains 45–50y it was 1.36 (1.11,1.65). Mean BMI at 50y increased with earlier onset of obesity; e.g. in males, from 31.4 kg/m² for mid-adult onset to 35.1 kg/m² for child onset. Longer duration of obesity was associated with poor PF (p-trend<0.001), e.g. in males, for childhood obesity onset (vs. never obese) OR_{adjusted} was 2.32 (1.26,4.29); for mid-adulthood obesity onset it was 1.50(1.16, 1.96); associations were abolished with further adjustment for 50y BMI.

Conclusion Study strengths include the large nationwide cohort followed from birth and prospective measures of BMI and PF, albeit BMI at some ages was self-reported. Obesity, BMI gains and earlier obesity onset were associated with poor PF in mid-adulthood. Findings relating to duration of obesity are important given the increasing prevalence of childhood obesity, which tends to track into adulthood. Our study highlights the importance of preventing and delaying obesity onset to mitigate the risk of poor PF in mid-adulthood.

P50 PREDICTIVE FACTORS FOR INDETERMINATE RESULTS IN INTERFERON- γ RELEASE ASSAYS – A PROBLEM TO CONSIDER

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Background Interferon- γ release assays (IGRA) are a crucial diagnostic tool for the detection of a Mycobacterium tuberculosis infection in order to control and eliminate the tuberculosis (TB) epidemic. Indeterminate results can occur and represent a considerable problem for clinical management, since they imply the lack of clear information about the patient's TB infection status. The aim of the study was to identify risk factors that could be associated with indeterminate IGRA results.

Methods Retrospective cohort study carried out using data from the Portuguese National Tuberculosis Surveillance system, from 2008 to 2015. Were included in the study 1230 patients with active TB and an IGRA result. The IGRA test used in the patients enrolled in the study was the QuantiFERON-TB Gold In-Tube (Qiagen). The association between indeterminate IGRA results and sociodemographic factors, comorbidities and the site of disease were evaluated through bivariate and multivariate logistic regression analysis.

Results Of the 1230 patients reported with active TB in the SVIG-TB database (2008–2015) that underwent an IGRA test, 857 patients (69.7%) had a positive test result, 212 (17.2%) had a negative result and 161 (13.1%) had an indeterminate result. Majority of the patients with indeterminate results were male (67.7%) and more than half had more than 50 years (57.1%). The proportion of indeterminate results increased as the age increased, with patients over 80 years old presenting the highest proportion of indeterminate results. Age \geq 65 years (OR 2.51, p<0.001), alcohol abuse (OR 3.04, p=0.001) and pulmonary TB (OR 3.07, p<0.001) were predictive factors for indeterminate IGRA results.

Conclusion Age \geq 65 years, alcohol abuse and pulmonary TB were identified as factors for the occurrence of indeterminate IGRA results. The first two factors can be identified prior to the test and thus help to quickly identify the probable cause of an indeterminate outcome and lead to the use of other clinical and diagnostic means to detect a possible infection.

P51 SENSITIVITY AND AGREEMENT OF AN INTERFERON-GAMMA RELEASE ASSAY AND TUBERCULIN SKIN TEST IN PATIENTS WITH PULMONARY AND EXTRAPULMONARY TUBERCULOSIS

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Background Tuberculosis (TB) is still a serious global public health concern, being essential a rapid and accurate diagnosis of infected individuals. The aim of this study was to estimate the sensitivity of the interferon- γ release assays (IGRA) and tuberculin skin test (TST) in patients diagnosed with active TB and the agreement between the tests.

Methods Retrospective cohort study carried out using data from the Portuguese National Tuberculosis Surveillance system, from 2008 to 2015. The study included all TB cases with an IGRA and TST result (n=727). The IGRA test used in the patients enrolled in the study was the QuantiFERON-TB Gold In-Tube (Qiagen). Sensitivity was calculated with 95% confidence interval (95%CI) for each test separately and in combination (IGRA and TST-5 mm or IGRA and TST-10 mm) and outcomes were compared using McNemar's test. Kappa coefficient (k) was used to evaluate the agreement between IGRA and TST test results.

Results The mean age of the patients was 47.9 years (\pm standard deviation 20.0 years), ranging from less than a 1 year to 91 years, with the age group 16–64 years representing the majority of cases. IGRA, TST-5 mm and TST-10 mm were positive in 82.4%, 84.5% and 78.4% of the TB patients. These results imply that 128 (17.6%), 112 (15.4%) and 157

(21.6%) patients with an active TB diagnosis were not identified by IGRA, TST-5 mm and TST-10 mm respectively. The difference between IGRA and TST was only statistically significant between IGRA and TST-10 mm ($p=0.021$). Agreement between IGRA and TST-5 mm was $k=0.402$ ($p<0.001$) with a concordance rate of 83.5% and between IGRA and TST-10 mm was $k=0.351$ ($p<0.001$) with a concordance rate of 79.5%. Combine sensitivity of IGRA plus TST-5 mm and IGRA plus TST-10 mm was 91.7% and 90.6%, respectively.

Conclusion IGRA tests showed a high sensitivity, however lower than the TST with a 5 mm cutoff. The level of agreement between IGRA and TST with either cut-offs was poor, with 16.5% of the patients showing different outcomes between IGRA and TST-5 mm and 20.5% between IGRA and TST-10 mm. This significant increase in sensitivity when results from both tests were combined suggests that the use of the two tests together could promote the identification of more cases of infection than if used separately and in substitution of one another. This could be especially important in countries where latent infection is the primary source of TB cases.

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IMPACT OF TWO TYPES OF PHYSICAL ACTIVITY UNDER RISK ENVIRONMENTAL CONDITIONS ON KIDNEY FUNCTION

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Background Performing strenuous physical activity in a heat environment with high air pollution has been associated to kidney injury in healthy individuals. The aim of this study was to evaluate the acute effects on the kidney of manual harvesting of sugarcane and supervised streets running exercise.

Methods We evaluated 49 male sugarcane workers, three months after harvesting beginning, before and after a daily work shift, and 39 male Brazilian army recruits, six months after performing street running five days a week, before and after a 7.5km (45 min) street running. Urine and blood samples were assessed for inflammatory markers, kidney biomarkers and renal function. Glomerular filtration rate (GFR) was estimated by CKD-EPI equation. Particulate matter (PM_{2.5}) and environmental temperature at sugarcane field during working days, and at street circuits during races, were monitored. Continuous variables are described by mean±SD or median(IQR). The differences between post and pre values are presented with their 95% confidence interval. Analyses were performed with SPSS (v21) software.

Results PM_{2.5} concentration and temperature were higher in sugarcane field: 101.0 µg/m³ (IQR: 31.0–139.5) and 29.7°C (24.1–34.0) compared to urban environment: 62.0 µg/m³ (37.5–103.0) and 22.2°C (20.9–23.5). Sugarcane cutters were older (41.3±10.6×19.1±1.0 years). There was significant and similar reduction of GFR in harvesters and recruits: -15.0 [95%CI:-18.3;-11.7]mL/min/1.73m² after shift work, and -14.1 [-18.1;-10.1] post-run, respectively; similar increase in serum creatinine (0.17[0.13;0.21] and 0.13[0.10;0.16]mg/dL) and in urinary KIM-1 (119.6[-1.5;240.6] and 427.1[168.7;685.5]pg/

mL). There was increase in serum NGAL (8.9[2.5;15.2]ng/mL after shift work and 2.7[-18.5;23.9] post-run) and in blood monocytes (42.4[2.0;82.7]/mm³ after shift work and -52.6[-120.7;15.4] post-run) observed only in sugarcane cutters, and blood neutrophils increase in both groups, which was higher in cutters: 1846[1349;2343] vs 400[150;649]/mm³ in recruits.

Conclusion Burned sugarcane harvesting and street running were associated with acute decline in kidney function, increase in biomarkers of renal injury and systemic inflammation, with more marked changes in sugarcane workers. These alterations are likely associated with the extraneous physical work, heat stress, air pollution and dehydration. The two groups evaluated showed differences that make it difficult to compare them. However, we were able to show the impact that physical activity in adverse conditions had on the studied outcomes. The effects of a daily repetitive kidney stress and inflammation are unknown, but may evolve to chronic disease in vulnerable individuals. Measures should be taken to improve the working conditions of sugarcane cutters, including cessation of burning of sugarcane, establishment of breaks and better hydration at work.

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MATERNAL EDUCATION AND LANGUAGE DEVELOPMENT AT 2 YEARS CORRECTED AGE IN CHILDREN BORN VERY PRETERM: RESULTS FROM A EUROPEAN POPULATION-BASED COHORT STUDY

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Background In the general population, children from socioeconomically disadvantaged families face higher risks of developmental language delay (DLD). Less research exists on very preterm (VPT) children and results have been contradictory, which may reflect a lesser impact of socioeconomic factors when perinatal risks for delayed development are high. Our objective was to investigate the association of maternal education with DLD at 2 years of age by degree of perinatal risk.

Methods Data come from the Effective Perinatal Intensive Care in Europe (EPICE) cohort, a population-based, prospective cohort study of children born <32 weeks' gestational age (GA) in 2011/2012. Perinatal data were abstracted from medical records and follow-up was conducted using parental questionnaires at 2 years corrected age. Six countries (Belgium, Estonia, France, Italy, Netherlands, UK) used a validated short form MacArthur Developmental Communicative Inventories Checklist (4666 children at inclusion 2990 (64%) followed up); DLD was assessed using 2 outcomes: not yet combining words; expressive vocabulary <10th percentile. Families speaking only other languages at home were excluded. Modified Poisson regression models were used to estimate relative risks (RRs) for DLD for maternal education overall and by perinatal risk (low, moderate, high), classified using GA, small for gestational age (SGA) and severe neonatal morbidities. All analyses were performed using Stata version 15.

Results 2643 VPT children (mean GA 28.8 weeks) were assessed at a median 24 months corrected age. 25.3% were not combining words and almost 40% were <10th percentile for expressive vocabulary. Among children with low perinatal