

P155

## P155 -An association of body mass index and kidney function among 13-year-old Malaysian adolescents

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**Introduction:** The prevalence of obesity among Malaysian children had increased from 3.1% during the 2006 National Morbidity & Health Survey (NMHS) to 11.9% during the 2015 NMHS. Later, a community-based study in 2017 showed an alarming prevalence of 30.3% children in the same age group were overweight and obese. Parallely, the prevalence of paediatric patients on dialysis in Malaysia doubled for the past 10 years. However, this information was described as ‘the tip of the iceberg’ of the real situation with an estimation of 50 times more children in the early stage of kidney disease can be found in the community. Without earlier diagnosis and with longer exposure to obesity, the kidney function will further deteriorate with time, increasing the risk for children to develop chronic kidney disease. The study objective was to determine the prevalence of early stage kidney disease among 13-year-old adolescents, together with examining its association with adiposity.

**Methods:** This is a cross-sectional study using a baseline data from an adolescent’s cohort study, the MyHeART study. Total of 1362 adolescents aged 13-year-old was recruited from public secondary schools in three provinces in Peninsular Malaysia. Selection of participants was based on a stratified sampling design as well as randomization. A questionnaire was used to investigate the participant’s sociodemographic background and the non-communicable diseases risk factors (e.g. smoking, drug use). Physical assessment was done with the PAQ-C questionnaire. Body mass index (BMI) category was based on the International Obesity Task Force (IOTF) cut-off while the estimated glomerular filtration rate (eGFR) calculated using the bedside Schwartz equation.

**Results:** The total prevalence of overweight and obesity among 13-year-old adolescents was 25.1% (16% overweight and 9.1% obese). Slightly higher percentage of overweight and obesity were seen in females compared to males. Nearly three quarters (70%) of obese adolescents had abnormal BP compared to 25.1% among the normal weight (OR = 6.95 (95% CI = 4.54 – 10.64). Among the participants, 7.7% had eGFR of <90 ml/min/1.73m<sup>2</sup> and most of them were male (66.7%). Apart from gender, the eGFR was significantly associated with smoking habit (p = 0.011, OR = 2.01 (95% CI = 1.14 – 3.56), blood pressure (p <0.001, OR = 1.61 (95% CI = 1.06 – 2.44), as well as the BMI (p < 0.001). The lower the BMI, the lower the odds for reduction in kidney function. A positive correlation was also seen between the creatinine level and BMI reading of the participants (Spearman p < 0.001, r = 0.192).

**Conclusion:** Our research demonstrated that overweight and obesity is an epidemic among Malaysian adolescents, and it were significantly associated with higher BP reading and a decrease in kidney function. The prevalence of kidney disease in this study was also 3 times more than those captured by the national renal registry. A more targeted and tailor-made public health intervention is therefore needed to overcome the issue of both obesity and kidney disease in Malaysia children. A special plan is needed to ensure kidney disease in children can be detected early.