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Prevalance of Early Nephropathy Changes in Children Living with Obesity

Azriyanti Anuar Zaini¹, Yamen Galghi¹, Nurshadia Samingan¹, Karmila Abu Bakar²

¹Paediatric Endocrine and Diabetes Unit, Department of Paediatrics, Faculty of Medicine, University Malaya

²Paediatric Nephrology Unit, Department of Paediatrics, Faculty of Medicine, University Malaya

Corresponding Author email: azriyanti@ummc.edu.my

Introduction:

Obesity related nephropathy has been identified independently from diabetic or hypertensive glomerulosclerosis. These include a silent presentation in an obese individual with heavy proteinuria, normal serum albumin and the absence of edema. Renal pathologic findings are notable for mesangial matrix expansion, glomerular hypertrophy and reduced density of podocytes with detachment of foot processes from the glomerular basement membrane. This audit is to screen children who are seen in clinics for risk of early nephropathy.

Methods:

Children who were seen and followed up in UMMC childhood obesity clinic from Jan 2025- Jan 2026 were included in the analysis. Their recent most anthropometry, and urine albumin creatinine ratio (ACR)/protein measurements were collected and recorded.

Results:

There was a total of 91 children seen during this period. There were 30% (n=27) female and 70% (n=64) males. Their median age was 12.8 years old (3.9-20.7 years old). Median height was 147.8cm (110.1-180.9cm). Their median weight was 72.9kg (30.0-126.9kg) and median BMI was 32.6kgm² (22.1-52.7kgm²). Although the age range was widely varied, and BMI categorical was dependent on age, 53% (43/91) had BMI >30-40kg/m² (beyond adult obesity cut off point), 12% (11/91) had BMI between 40-50kgm² and 1 child had BMI of 52.7kgm² which was categorized as severely morbid obesity (class 3). Forty-two percent (38 /91) had their urine screened and one patient had abnormal UACR above age limit was detected. This patient was indeed asymptomatic, and the results were significant to warrant further investigation.

Conclusion:

Although rare, simple urinary protein or ACR screening may detect early obesity related nephropathy in children. Early referral and treatment may prevent deterioration. Aggressive management for obesity may deter early complications.