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Metabolic syndrome in pediatric renal transplant patients: Its $B!G (B consequences and treatment)

Eunice John
University of Illinois, Chicago

The association between obesity, metabolic abnormalities, such as hyperglycemia, dyslipidemia and cardiovascular disease (CVD) has been described 100 years ago, later confirmed by the Farmingham Study. In the late 80 $B!G (Bs of the 20th Century, Rearen described a pathological link explaining the pathogenesis of CVD associated with obesity, metabolic abnormalities and elevated blood pressure and indicated central role of hyperinsulinemia and insulin resistance (IR). The definition of metabolic syndrome (MS) is based on the findings of at least three abnormalities such as obesity, elevated blood pressure, low-HDL cholesterol, hypertriglyceridemia and hyperglycemia.

Visceral obesity and metabolic abnormalities typical for metabolic syndrome (MS) is new epidemic in adolescence. MS is not only a risk factor for cardiovascular disease but also for chronic kidney disease (CKD). Thus MS is a new challenge for the pediatric nephrologist. Firstly, hypertension and diabetic nephropathy are the main causes of CKD in adults. Both share the same pathophysiological abnormalities associated with visceral obesity and insulin resistance and have their origins in childhood. Secondly, as the obesity epidemic also affects children with CKD, MS emerges as the risk factor for progression of CKD. Thirdly, metabolic abnormalities typical for MS may pose additional risk for cardiovascular morbidity and morbidity in children with CKD. Finally although renal transplantation reverses uremic abnormalities, it is associated with exposure to new metabolic risk factors for graft loss and cardiovascular morbidity after renal transplantation. Even if clinically evident cardiovascular disease is very rare in childhood, it is known from population based studies that cardiovascular risk in adulthood depends on exposure to metabolic risk factors in childhood. In contrast to the general pediatric population in children with chronic disease and after transplantation, cardiovascular complications are the main cause of mortality. Therapy should focus on treating risk factors. Both, non pharmacological treatments based on dietary modification and physical activities and pharmacological treatment with statins, are effective in the treatment of metabolic abnormalities in children with CKD. After transplant, maintaining good renal graft function and modification of immunosuppressant medications are helpful to minimize the development of MS and its consequences.

Biography

Eunice John is a Professor, Chief of Pediatric Nephrology and Director of Pediatric Transplantation at the University of Illinois Hospital and Health Sciences System. She has trained generations of Pediatricians and is acclaimed for her teaching. For over three decades she has cared for children with renal diseases and children with renal, liver and small bowel transplants. With over a hundred publications and presentations she has attained international renown. Her research interests encompass pediatric renal transplantation, obesity, metabolic syndrome and diabetes, among others.

ejohn@uic.edu