O1-6

Chronic Kidney Disease in Adolescents with Congenital Heart Disease

Bojan M.(1), Mirabile C.(1), Pieroni L. (2), Froissart M. (3), Bonnet D. (1,4)
(1) CHU Necker-Enfants Malades, Paris, France
(2) CHU Montpellier, France
(3) INSERM, Villejuif, France
(4) Université Paris-Descartes, Paris, France

Background. Chronic kidney disease (CKD) is an important prognostic factor in young adults with congenital heart disease (CHD) [1]. Although it is likely that CKD is manifest early in CHD patients, the prevalence among adolescents is not known. Albuminuria is acknowledged to be the earliest marker of glomerular injury, and the most important predictor of decline in glomerular filtration rate (GFR) in children with CKD [2]. The new KDIGO 2012 guidelines highlight the importance of albuminuria for CKD screening [3]. The present study estimate the prevalence of CKD in CHD adolescents.
Methods. After information and written consent, CKD was assessed in patients aged 10 to 18 years with various CHD, attending the cardiologic outpatient clinic at our institution for follow-up after cardiac surgery in infancy. CKD stage was assessed according to the new KDIGO 2012 criteria [3]. CKD assessment used the bedside Schwartz equation [4] based on serum creatinine, and the Zappitelli equation based on cystatine C [5] to estimate GFR, and measurement of albuminuria. Because of the prevalence of microalbuminuria in healthy individuals, (3-30mg/mmol creatinine) [6], i.e. 6.2% in males and 13.4% in females, results are shown as estimates of the excess risk, calculated as the observed minus the expected number of patients with albuminuria.
Results. 20.34% of patients had albuminuria stage A2 (3-30 mg/mmol creatinine) and A3 (>30mg/mmol creatinine), allowing to estimate the excess risk of CKD associated with CHD at 11.20%, 95%CI [4.36%-18.35%]. Patients with Fontan palliation had the highest prevalence of albuminuria, 45.4%. No patient had CKD according to the estimated GFR, but 10.92%, 95%CI [5.83%-16.81%] had isolated mild decrease in GFR (< 90 ml/min/1.73m2).
Conclusions. Evidence of CKD has been identified in the present population based on albuminuria but not on GFR. These results call for routine, periodic screening for CKD, in particular for albuminuria, in all CHD patients to obtain prognostic information and identify patients who may benefit from early intervention.
References
1.Dimopoulos K, Circulation 2008
2.Wingen AM, Lancet 1997
3.KDIGO 2012. Kidney international (Suppl)
4.Schwartz GJ, JASN 2009
5.Zappitelli M, AJKD 2006
6.Jones CA, AJKD 2002