

Abstract

Background: Chronic kidney disease (CKD) is associated with cognitive dysfunction.

Few studies in children have focused on socioeconomic risk factors.

Methods: This cross-sectional study included children aged 6 to 18 years with CKD stage 2-5D, and kidney transplant. Children with acute illness, visual or hearing impairment, psychosis, and central nervous system (CNS) diseases were excluded. Cognitive function was assessed by the WISC-V for children from 6 to 16 years of age. In adolescents 17-18 years of age, the WAIS-III was used. Factors associated with cognitive dysfunction were identified using multivariable regression analysis.

Results: Thirty-seven children with a median age of 13.9 (11.3-15.7) years were recruited. The median full-scale intelligence quotient (FSIQ) was 83.0 (71.0-95.0). Below-average cognitive function (FSIQ<90) was identified in 24 children, 24.3% of whom had cognitive impairment (FSIQ<70). Most children (94.6%) scored lower than average on at least 1 cognitive domain. In the multivariable linear regression analysis, school dropout and low family income were significantly associated with cognitive function. The FSIQ in the school dropout group was 12.54 points lower than that in the education group ($p=0.046$). In addition, every 10,000 Thai Baht (approximately 330 United States dollars) increase in family income was correlated with an FSIQ increase of 1.49 ($p=0.046$).

Conclusion: Cognitive dysfunction was commonly found in children with CKD. Socioeconomic factors, particularly schooling and family income, were partly associated with cognitive dysfunction. Cognitive evaluation in CKD is suggested in children with socioeconomic risk.

Keywords: Chronic kidney disease, Cognitive dysfunction, Cognitive impairment, Cognitive deficits, Pediatrics

