**Effect of elevated systolic blood pressure and pulse pressure on the progression of chronic kidney disease in children**

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**Objectives**

Increased systolic blood pressure (SBP) and pulse pressure (PP) are associated with the progression of chronic kidney disease (CKD) and there is a good correlation between increased left ventricular mass index (LVMI) and decline in glomerular filtration rate (GFR). However, the exact nature of the relationship between PP, SBP, and LVMI has not been established in children with CKD, which this study aims to investigate.

**Methods**

This is a retrospective study of pediatric patients with CKD utilizing Chronic Kidney Disease in Children (CKiD) database from the National Institute of Diabetes and Digestive Kidney Disease (NIDDK) registry. Only children with iohexol-based GFR (iGFR) < 60 ml/min/1.73 m2 (n=620) were included for analysis. Analysis of relationships between SBP vs iGFR, diastolic blood pressure (DBP) vs iGFR, PP vs iGFR and LVMI vs iGFR were done using a two-tailed significance test and Pearson’s correlation coefficient. Statistical analysis was done using SPSS software (IBM).

**Results**

The clinical characteristics at baseline were age 9.8 ± 4.4 years (mean ± SD), iGFR 37.9 ± 12.1 ml/min/1.73 m2, SBP 107.9 ± 13.5 mm Hg, DBP 66.3 ± 11.4 mm Hg, PP 41.7 ± 10.8 mm Hg, and LVMI 30.9 ± 9.3. Increasing SBP strongly correlated with decreasing iGFR (r=-0.16; p<0.001). Increasing DBP also correlated well with decreasing iGFR (r=-0.11; p<0.01), as did PP (r=-0.08; p<0.01). This inverse relationship was maintained between LVMI and iGFR (r=-0.09; p<0.05).

**Conclusion**

A strong inverse relationship exists between iGFR and LVMI, SBP, DBP, PP. These findings suggest that effective blood pressure control is of paramount importance in CKD children to decrease the rate of decline in renal function.