

Effect of oral high-dose cholecalciferol on cardiac mechanics in children with chronic kidney disease

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Background: As cardiovascular factors are the leading cause of mortality in chronic kidney disease (CKD) and as vitamin D deficiency is prevalent in this population, we aimed to examine the effect of oral cholecalciferol on cardiac mechanics in children with CKD.

Methods: Forty-one children with CKD and 24 healthy subjects free of any underlying cardiac or renal disease with low 25-hydroxyvitamin D3 (25OHD) levels were evaluated by conventional, tissue-Doppler imaging (TDI) and 2D speckle tracking echocardiographic (2D STE) methods basally and following Stoss vitamin D supplementation. Left ventricular strain and strain rate values were compared among the groups.

Results: Initial longitudinal and radial strain and strain rate values of the left ventricle were significantly lower in patients. After vitamin D supplementation, these improved significantly in patients, while no significant change was observed for the healthy group.

Conclusions: Our interventional study showed that while conventional and TDI methods could not determine any affect, 2D STE revealed the favorable effects of high-dose cholecalciferol on cardiac mechanics, implying the importance of vitamin D supplementation in children with CKD.