PO0570
Low Magnesium Is Associated with Weak Bone Strength in Pre-Dialysis CKD Patients: Results from the KNOW-CKD Study

Mingju Kang,1 Eunjeong Kang,2 Curie Ahn,3 Kook-Hwan Oh,4 1Seoul National University College of Medicine, Seoul, Republic of Korea; 2Ewha Womans University, Seoul, Republic of Korea.

Background: In patients with chronic kidney disease (CKD), bone strength was weakened as CKD progressed. There are still controversies of the association between magnesium (Mg) deficiency and osteoporosis in pre-dialysis CKD patients.

Methods: We investigated the association between serum Mg and a decrease of bone mineral density (BMD) from the prospective, multicenter cohort of pre-dialysis CKD patients (n=928). Patients were divided into tertiles according to serum Mg. The primary endpoint is a decrease of BMD, defined as decline of BMD of lumbar spine <−0.05g/cm2. We performed sensitivity analysis with decline of BMD of femur neck.

Results: After 4 years of follow-up, BMD decreased in 267 (28.7%) patients. In a multivariable binary logistic regression model, the lowest tertile of Mg was associated with risk of the decrease of BMD of lumbar spine (OR 2.29 [95% CI 1.58-3.32], OR 2.00 [1.27-3.14], and OR 1.00 [ref], respectively). The results were obtained even when sensitivity analysis was performed with BMD of femur neck.

Conclusions: Low level of Mg is associated with a weak bone strength in pre-dialysis CKD patients.

PO0571
The Vitamin D Metabolite Ratio May Serve as an Important Biomarker of Vitamin D Status in Patients Undergoing Therapeutic Plasma Exchange

Anushree Dugar,1 Andrew N. Hooftgraaf,2 Amber P. Sanchez,3 David M. Ward,4 Jonathan Cheng,2 Joachim H. Ix,3 Charles Ginsberg.1 1University of California San Diego School of Medicine, La Jolla, CA; 2University of Washington, Seattle, WA; 3University of California San Diego Department of Medicine, La Jolla, CA.

Background: Recent studies suggest that 25-hydroxyvitamin D [25(OH)D] may be a poor marker of vitamin D status due to variability in levels of vitamin D binding protein (VDBP). The vitamin D metabolite ratio (VMR) is the ratio of 24,25(OH)D3:25(OH)D3 (VDBP). Variables may alter VMR levels. The lack of change in VMR across TPE despite a significant change in VDBP suggests that VMR is independent of VDBP levels. The VMR may therefore serve as an important biomarker of vitamin D status in populations with a large spectrum of VDBP concentrations.

Changes in Vitamin D Metabolites, VDBP, and VMR from Before to After a Single TPE Procedure (N=45)

PO0572
Childhood Hypercalcicuric Hypercalcemia with Elevated Vitamin D and Suppressed Parathyroid Hormone: Long-Term Follow-Up

Evgenia Gurevich,1 Shelly S. Levi,1 Yael Borovitz,1 Hadas Alfandary,5 Liat Ganon,3 Dagan Dinour,2 Miriam Davidovits,1,3 1Schneider Children’s Medical Center of Israel, Petah Tikva, Israel; 2Department of Nephrology and Hypertension, the Chaim Sheba Medical Center, Tel-Hashomer, Israel; 3Tel Aviv University, Tel Aviv, Israel; 4Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel.

Background: Hypercalcicuria, hyperparathyroidism, or nephrocalcinosis, was recently reported as caused by mutations in CYP24A1 and SLCT34A genes. These encode for vitamin D-24α-hydroxylase and for the renal phosphate transporters NaPi2a and NaPi2c, respectively.

Methods: Ten patients with the above features were followed in our center during 1998-2019. Relevant laboratory and imaging data and results of genetic evaluation were retrieved from medical files.

Results: The median age at presentation was 9.5 months (range 1 month-11 years), six (60%) males, and the median follow-up time was 3.8 (1.1-14) years. Mutations in CYP24A1 and SLCT34A3 were identified in three and one patients, respectively. Five patients presented with nephrocalcinosis, three with nephrolithiasis, and two had normal renal ultrasound. High blood calcium and 1,25(OH)2D levels at presentation decreased during follow-up (11.1±4.9 vs 9.9±2.5 mg/dl (p=0.012) and 307±130 vs 209±65 pmol/l (p=0.03), respectively), this paralleled an increase in suppressed PTH levels (5.8±9.09 vs 11.8±7.5 pg/ml, p=0.2). Substantial improvements in hypercalcicuria and renal sonography findings were not observed. Two patients had impaired renal function (eGFR 84-88 ml/min/1.73m2) at the last follow-up. Interventions included appropriate diet, citrate supplementation, and thiazides.

Conclusions: In patients with the described clinical and laboratory profile, abnormal renal sonographic findings can persist despite appropriate treatment; and renal function may deteriorate. Long-term follow up and intervention to prevent nephrocalcinosis and nephrolithiasis are recommended in these children.

PO0573
Performance Status (PS) as an Effect Modifier for Association Between Vitamin D Receptor Activator (VDRA) and Outcomes Among Hemodialysis Patients

Mihoko Murashima,1 Takayuki Harano,2 Kazuhiko Tsuruya,3 Satoshi Ogata,4 Eiichiro Kanda,2 Masanori Abe,2 Ikuto Masakane,2 Kosaku Nitta.2 1Research Subcommittee of Japanese Renal Data Registry, Japanese Society for Dialysis Therapy; Tokyo, Japan; 2Renal Data Registry Committee, Japanese Society for Dialysis Therapy; Tokyo, Japan; 3Nara Kentsushia Ika Daigaku, Kashihara, Japan; 4Hiroshima Kokusai Daigaku, Higashiiroshima, Japan.

Background: VDRA use has been reported to be associated with lower mortality and fracture among hemodialysis patients. However, PS has not been considered in previous studies.

Methods: This is a prospective cohort study based on JSDT Renal Data Registry. Subjects on hemodialysis with age 20-100 at the end of 2009 were included. Exposure variables were two-year all-cause mortality and hip fracture. Associations between VDRA use and mortality or fracture were analyzed using Cox or poisson regression, respectively and interaction between VDRA use and PS was tested.

Results: Among 210,001 subjects, 80,492 (61.7%) were on VDRA. VDRA use was associated with lower mortality or fracture among hemodialysis patients. However, PS has not been considered in previous studies.

Key: TH - Thursday; FR - Friday; SA - Saturday; OR - Oral; PO - Poster; PUB - Publication Only
Underline represents presenting author.