SA-PO179  
**Skeletal Responsiveness to Parathyroid Hormone in Hemodialysis**  
**Patients: International Variation and Association With Factors and Risk of Fractures in the DOPPS**  
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**Background:** Bone response to parathyroid hormone (PTH) is impaired in chronic kidney disease (CKD) owing to multiple factors including phosphate loading, calcitriol deficiency, and accumulation of uremic toxins. Other factors may also affect PTH responsiveness including regional and/or ethnic differences, and pharmacological treatment. Using alkaline phosphatase (ALP)/PTH ratio as a proxy for skeletal responsiveness to PTH, we investigated (1) the differences in ALP/PTH by international region and race, (2) patient factors associated with ALP/PTH, and (3) association between ALP/PTH and incidence of fracture in hemodialysis (HD) patients.

**Methods:** The analysis includes 31,701 HD patients with dialysis vintage >120 days in 9 countries in DOPPS phase 3-7 (2005-2021). The primary exposure variable was ALP/PTH. ALP and PTH levels were both divided by the facility upper normal limit to normalize the values. Cox models were used to estimate hazard ratios (HR) of fracture across levels of ALP/PTH and also for normalized ALP alone. Logistic regression was used to model associations between low ALP/PTH (<0.1) and clinical factors. All models were adjusted for potential confounders including country, case-mix, and laboratory values.

**Results:** Median ALP/PTH was 0.21, 0.33, 0.17, and 0.23 in Europe, Japan, US-Black, and US-Nonblack, respectively. ALP/PTH <0.1 was associated with male gender, Black race, higher body mass index, higher serum levels of albumin, phosphorus and calcium, and use of vitamin D analogues and cinacalcet. ALP/PTH was not associated with any factors (p = 0.81). In contrast, normalized ALP had a strong monotonic association with fracture rate; the HR (95% CI) compared to the reference group of 0.75-0.99 ranged from 0.77 (0.60,0.97) for ALP <0.50 to 1.35 (1.06,1.74) for ALP 1.50+.

**Conclusions:** In this large international cohort study, skeletal responsiveness to PTH in HD patients showed regional and ethnic differences and may be affected by pharmacological treatment and clinical factors. We did not observe a direct association between ALP/PTH and fracture, but higher ALP production reflecting bone responsiveness to PTH may increase fracture risk in HD patients.

SA-PO180  
**Seasonality in Hip Fracture Among Hemodialysis Patients and Kidney Transplant Recipients in South Korea**  
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**Background:** The seasonality of hip fracture in hemodialysis (HD) patients and kidney transplant recipients (KTRs) have not been reported. We assessed seasonal variations in hip fractures among patients with end-stage kidney disease who undergo maintenance HD and KTRs.

**Methods:** Using the Korea National Health Insurance System database from January 2012 to December 2017, monthly counts of hip fracture were calculated among HD patients (n = 77,420) and KTRs (n = 8,921) (Fig 1.). The 6-year normalized monthly fraction and seasonal fractions of hip fractures were calculated. A cosine analysis was performed to determine the seasonality of the monthly incidence of hip fractures.

**Results:** The 6-year average monthly fraction of hip fractures was lowest in June and highest in October in HD patients, and lowest in February and highest in November in KTRs. The 6-year average seasonal fraction among HD patients was lowest in summer and highest in winter, and lowest in summer and highest in autumn among KTRs, both without statistical significance. The incidence ratio of hip fractures was lowest in June and highest in January in HD patients, and lowest in August and highest in November in KTRs. On cosinor analysis, HD patients showed significant seasonality in hip fracture incidence, with a trough in summer and a peak in winter (P = 0.002), whereas KTRs did not exhibit a significant trend (P = 0.293) (Fig 2.).

**Conclusions:** Hip fractures occurred more frequently in winter and less frequently in summer in patients undergoing HD, whereas KTRs did not show a seasonal trend.

SA-PO181  
**Association Between Cause of Kidney Failure and Fracture Incidence in a National US Dialysis Population Cohort Study**  
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**Background:** Whether fracture rates, overall and by fracture site, vary by cause of kidney failure in patients receiving dialysis is unknown.

**Methods:** Using the US Renal Data System (USRDS), we compared fracture rates across seven causes of kidney failure in patients who started dialysis between 1997 and 2014. We computed unadjusted and multivariable adjusted proportional sub-distribution hazard models, with fracture events (overall, and by site) as the outcome and IgA nephropathy as the reference group. Kidney transplantation and death were competing events.

**Results:** Among 491,496 individuals, with a median follow-up of 2.0 (0.9–3.9) years, 62,954 (12.8%) experienced at least one fracture. Patients with diabetic nephropathy, vasculitis, or autosomal polycystic kidney disease (ADPKD) had the highest (50, 46, and 40 per 1000 person-years, respectively), and patient with lupus nephritis had the lowest (20 per 1000 person years) fracture rates. After multivariable adjustment, diabetic nephropathy (HR 1.43, 95% CI 1.33-1.53), ADPKD (HR 1.37, 1.26-1.48), vasculitis (HR 1.22, 1.19-1.25), membranous nephropathy (HR 1.16, 1.12-1.20), or FSGS (HR 1.13, 1.09-1.24) were associated with a significantly higher, and lupus nephritis with a significantly lower (HR 0.85, 0.71-0.98) fracture hazard. The hazards for upper extremity and lower leg fractures were significantly lower in diabetic nephropathy, ADPKD, FSGS, and membranous nephropathy, while the hazard for vertebral fracture was significantly higher in vasculitis.

**Conclusions:** Fracture risk varied overall and by fracture site, vary because of ESKD. Future work to determine underlying pathogenic mechanisms contributing to differential risks might inform more tailored treatment strategies.

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SA-PO182  
**Therapy With Romosozumab Followed by 1 Year of Denosumab in Hemodialysis Patients With Osteoporosis: An Observational Study**  
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**Background:** Evidence of the treatment with romosozumab (ROMO) in hemodialysis (HD) patients is limited. Accordingly, here we report clinical characteristics of ROMO in these patients.

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Underline represents presenting author.