the Vascular Endothelial Growth Factor (VEGF) has been advocated to take part to BRONJ pathogenesis via interfering with angiogenesis. No information is currently available on the VEGF concentrations after Zol administration for osteoporosis.

Objectives: To explore change of VEGF concentrations after Zol administration in postmenopausal women with osteoporosis.

Methods: A total of twenty-eight postmenopausal women with osteopenia or osteoporosis and at least one prevalent vertebral fracture were recruited and randomized in two groups. Eighteen women received a single i.v. dose of Zol 5mg, while the other ten served as controls. Serum samples were collected at baseline, after 3 and 30 days, for repeated measurements of VEGF, and measurement of bone turn over markers and 25-hydroxyvitamin D (25(OH)D).

Results: VEGF levels increased significantly after 3 days in women receiving Zol; then levels decreased after 30 days compared with VEGF concentrations at both day-3 and baseline (-18% at day-30 vs. baseline, $p=0.01$). 25(OH)D level, a surrogate of vitamin D status, was associated with VEGF change at the end of the study ($r=0.29$, $p=0.028$), and this association was maintained also after correcting for age, BMI, time since menopause, femoral neck BMD, osteocalcin, C-terminal telopeptide of collagen type 1 and baseline levels of VEGF ($\beta=1.7$, $SE=0.71$, $p=0.03$).

Conclusion: Zol administration induced a reduction of circulating VEGF in postmenopausal women treated for osteoporosis, and vitamin D status has been showed to modulate this change. Further studies in this setting of women are needed to define whether VEGF modifications may predict the risk of BRONJ.

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Crystal diseases, metabolic bone diseases other than osteoporosis

POS1120

PRESENCE OF TOPHI IS ASSOCIATED WITH A RAPID DECLINE IN THE RENAL FUNCTION IN PATIENTS WITH GOUT

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Background: Gout is the most common inflammatory arthritis resulting from a chronic deposition of MSU crystals in the joints and other soft tissues. After the process of repeated tissue damage and repair due to gout, tophi could be formed around the affected joints. Intra-articular tophi may sometimes result in bone destruction, joint deformities, and dysfunction which can adversely affect the patient's quality of life. Furthermore, early-onset tophaceous gout patients are more likely to develop renal dysfunction, however, few studies have investigated if the presence of tophi is related with the progression of renal dysfunction in gout patients.

Objectives: We aimed to compare clinical characteristics of patients with and without tophi at the time of the diagnosis of gout and investigate the effect of tophi on the renal function in gout patients.

Methods: Data of 257 patients who were first diagnosed with gout at the Kangwon National University Hospital from January 2012 to December 2018 were retrospectively studied. Patients were divided into 2 groups according to the presence of tophi at the diagnosis. We compared clinical characteristics and the progression of renal dysfunction between the two groups.

Results: Of all patients, 66 (25.5%) initially presented with tophi. Patients with tophi were older, had a longer duration of symptoms, and had a higher prevalence of multiple joint involvement than those without tophi. The decline in the eGFR was more prominent in patients with tophi than in those without (-4.8 ± 14.5 ml/min/1.73m² vs. -0.7 ± 11.9 ml/min/1.73m², respectively; $P=0.039$). In multivariate logistic regression analysis, a prolonged symptom duration (odds ratio [OR], 1.010; 95% confidence interval [CI], 1.004–1.017; $P=0.001$) and multiple joint involvement (OR, 3.027; 95% CI, 1.831–5.004; $P<0.001$) were significantly associated with increased risk of formation of tophi. The presence of tophi was significantly associated with a rapid decline in the eGFR ($\beta=-0.141$; $P=0.035$).

Conclusion: A prolonged symptom duration and multiple joint involvement were independent risk factors for tophi as the presenting symptom in gout patients. The presence of tophi was associated with a declining renal function. Therefore, an early diagnosis and active treatment are important in tophaceous gout.

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POS1121

DEMOGRAPHICS, COMORBIDITIES, AND RENAL FUNCTION OF UNCONTROLLED GOUT PATIENTS WHO RECEIVED PEGLOTICASE: FINDING FROM A LARGE US CLAIMS DATABASE

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Background: NHANES data indicate that approximately 9.2 million Americans have gout,¹ with a small subset having uncontrolled disease.² Pegloticase is a PEGylated recombinant uricase enzyme indicated for treating uncontrolled gout that markedly reduces serum uric acid levels (sUA)³ and resolves tophi in treatment responders.⁴ Despite pegloticase availability in the US for many years, real world demographics of pegloticase users in the treatment of uncontrolled gout have not been previously reported in a population-based cohort.

Objectives: This study utilized a large US claims database to examine demographics and co-morbidities of uncontrolled gout patients treated with pegloticase. Kidney function before and after pegloticase treatment and concomitant therapy with immunomodulators were also examined.

Methods: The TriNetX Diamond database includes de-identified data from 4.3 million US patients with gout (as of September 2019), including demographics, medical diagnoses, laboratory values, procedures (e.g. infusions, surgeries), and pharmacy data. Patients who had received ≥ 1 pegloticase infusion were included in these analyses. The number of infusions was evaluated for a subgroup of patients who were in the database ≥ 3 months before and ≥ 2 years after the first pegloticase infusion (i.e. first infusion prior to September 2017) to ensure only complete courses of therapy were captured. In this subpopulation, kidney function before and after pegloticase therapy was examined, along with the presence of immunomodulation prescriptions (methotrexate, mycophenolate mofetil, azathioprine, leflunomide) within 60 days prior to and 14 days after the first pegloticase infusion.

Results: 1494 patients treated with pegloticase were identified. Patients were 63.1 ± 14.0 years of age (range: 23–91), mostly male (82%), and white (76%). Mean sUA prior to pegloticase was 8.7 ± 2.4 mg/dL ($n=50$), indicating uncontrolled gout in the identified population. The most commonly reported comorbidities were chronic kidney disease (CKD, 48%), essential hypertension (71%), type 2 diabetes (39%), and cardiovascular disease (38%), similar to pegloticase pivotal Phase 3 trial populations. In patients with pre-therapy kidney function measures ($n=134$), pre-treatment eGFR averaged 61.2 ± 25.7 ml/min/1.73 m², with 44% having Stage 3-5 CKD. In patients with complete therapy course capture and pre- and post-therapy eGFR measures ($n=48$), kidney function remained stable (change in eGFR: -2.9 ± 18.2 ml/min/1.73 m²) and CKD stage remained the same or improved in 81% of patients. In 791 patients with complete treatment course capture, patients had received 8.7 ± 13.8 infusions (median: 3, IQR: 2-10). Of these, 189 (24%) patients received only 1 pegloticase infusion and 173 (22%) received ≥ 12 infusions. As the data cut-off for this analysis pre-dated emerging data on the use of immunomodulation as co-therapy, only 19 of 791 (2%) patients received immunomodulation co-therapy with pegloticase.

Conclusion: This relatively large group of patients with uncontrolled gout treated with pegloticase had similar patient characteristics of those studied in the phase 3 randomized clinical trials. Patients with uncontrolled gout are significantly burdened with systemic co-morbid diseases. The majority of patients had stable or improved kidney function following pegloticase treatment. As these results reflect patients initiating treatment prior to 2018, before co-treatment with immunomodulation was introduced, this cohort only included a small percentage of patients who were co-treated with an immunomodulator. Future studies using more current datasets are needed to evaluate real world outcomes in patients treated with pegloticase/immunomodulator co-therapy and to evaluate the impact of systemic co-morbid diseases.

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POS1122

PRELIMINARY FINDINGS OF THE PROTECT CLINICAL TRIAL: PEGLOTICASE EFFICACY AND SAFETY IN KIDNEY TRANSPLANT RECIPIENTS

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Background: The prevalence of gout is high in kidney transplant (KT) recipients (up to 13%), largely because of decreased kidney function and calcineurin inhibitor use.¹ Residual chronic kidney disease (CKD) leading to decreased urate lowering therapy clearance and drug interactions make managing gout in KT recipients challenging. Studies show that successful treatment with pegloticase, a pegylated uricase, leads to marked reductions in serum uric acid (sUA)² and a subsequent decrease in overall urate load and tophi burden.³ However, pegloticase use in solid organ transplant recipients has not been systematically studied or well-characterized in the literature.^{4,5}

Objectives: To examine the safety and efficacy of pegloticase in KT recipients with uncontrolled gout.

Methods: This ongoing multicenter, open-label, efficacy and safety study of pegloticase in KT recipients (NCT04087720) included patients with uncontrolled gout sUA ≥ 7 mg/dL, urate lowering therapy [ULT] contraindication/inefficacy, and with either visible tophi, chronic gouty arthritis, or ≥ 2 flares in past year, who were KT recipients (KT >1 year prior), had a functioning graft (estimated glomerular filtration rate [eGFR] ≥ 15 ml/min/1.73 m²), and were on a stable immunosuppressant regimen. Pegloticase (8 mg infusion) was administered biweekly for 24 weeks (12 infusions) followed by a safety visit 30 days after the last infusion and 3-month post-treatment follow up visit. The primary endpoint was proportion of patients who were serum uric acid responders during Month 6 (sUA <6 mg/dL for $\geq 80\%$ of time). Change from baseline (CFB) at 24 weeks was also evaluated for sUA, renal function, and health assessment questionnaire (HAQ) disability index (DI, maximum = 3) and pain (maximum = 100).

Results: Preliminary findings of this study included 15 patients (12 male, 53.5 $\pm$ 11.0 years of age) with uncontrolled gout (6.2 $\pm$ 6.0 years since diagnosis) who had received a donor kidney 15.1 $\pm$ 6.6 years earlier. At the time of analysis, 5 patients had completed the 24-week treatment period and 8 remained on therapy (last visit sUA <0.1 mg/dL in 6 patients, 1 had sUA of 7.4 mg/dL, 1 only received first infusion), and 2 had discontinued treatment (sUA rise [n=1], COVID-19 concerns [n=1]). Of the 5 patients who completed 24 weeks of therapy, all met response criteria and sUA was below detection limits (CFB: -10.2 $\pm$ 1.3 mg/dL, baseline [BL]: 10.2 $\pm$ 1.3 mg/dL). Patients also had less pain (HAQ-pain CFB: -33.6 $\pm$ 22.2, BL: 35.9 $\pm$ 22.0; n=5) and disability (HAQ-DI CFB: -0.3 $\pm$ 0.6, BL: 0.7 $\pm$ 0.8; n=5) at 24 weeks compared to BL. eGFR remained stable during 24 week treatment (eGFR CFB: -0.2 $\pm$ 6.3 ml/min/1.73 m², BL: 40.9 $\pm$ 14.4 ml/min/1.73 m²; n=5). Urine albumin-to-creatinine ratio showed improvement at 24 weeks (CFB: -223 $\pm$ 405 mg/g, BL: 664 $\pm$ 870 mg/g; n=5). 80% of patients experienced an AE, and 4 SAEs (duodenal ulcer, cellulitis, dyspnea, skin bacterial infection) deemed unrelated to pegloticase were reported. AEs that occurred in >1 patient included gout flare, pyrexia, arthralgia, and nasal congestion. No anaphylaxis or infusion reactions occurred.

Conclusion: Initial findings suggest that pegloticase therapy is effective at reducing sUA in most KT recipients while preserving renal function. Results suggest that in the setting of profound urate lowering with pegloticase in KT patients, eGFR remains stable and patients experience clinically beneficial reductions in pain and disability with an absence of unexpected safety findings.

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POS1123

DISORDERS OF URODYNAMICS AND PARENCHYMA CONCENTRATION FUNCTION IN PATIENTS WITH ARTERIAL HYPERTENSION AND GOUT

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Background: The combination of arterial hypertension and gout increases the risk of developing chronic kidney disease in patients.

Objectives: To assess urodynamics and concentration function of the renal parenchyma in patients with arterial hypertension and gout.

Methods: We examined 87 patients with arterial hypertension and gout. 83% of the patients were men with a mean age of 55.4 $\pm$ 12.3 years. Grade I arterial hypertension was detected in 43.7% of patients, grade II was in 36.9% and grade III was in 19.3%. The duration of arterial hypertension was 8 [4; 11] years. All the patients had chronic gouty arthritis. 30% of the patients had tophi. The duration of gout was 7 [2; 10] years. Markers of renal lesions, urine sediment and GFR calculation were assessed in all the patients. All the patients were performed a modern systems analysis of nephrological conditions based on comprehensive renoscintigraphy (SENS-CRS) which allows to make an in-depth differential analysis of the renal parenchyma and thus reveals abnormalities in the upper and lower urinary tract function with a minimum of radiation exposure of 0.6 mSv per patient.

Results: Using the standard method of GFR calculation with CKD-EPI formula we found that 10 patients (11.3%) had no signs of CKD (GFR over 90 ml/min); 56 patients (64.5%) had I-II stage of CKD (GFR over 60 ml/min) 21 patients (24.2%) had III-IV stage of CKD (GFR less than 60 ml/min).

The patients were divided into two groups for a differentiated assessment of urodynamics. Group I consisted of 66 patients with a GFR of more than 60 ml/min and Group II consisted of 21 patients with a GFR of less than 60 ml/min. The comparison of the two groups revealed abnormalities in urodynamics. In Group I arterial blood flow in the parenchyma (A 14.5 $\pm$ 6.8 sec) was slowing down against the background of normal venous outflow (V 17.8 $\pm$ 9.2%). Concentration function of the kidneys was sufficient (Gren 17.6 $\pm$ 5.2 o.e.). The total excretion rate of labeled urine from the two kidneys decreased to D = 56.5% $\pm$ 16.1% during its transition from the cortical to the cerebral layer of the renal parenchyma. The indexes of the relative urinary stasis in the renal calyx-pelvis system exceeded the standard ones on average by 2 times (KC 4.8 $\pm$ 3.2; KP 7.0 $\pm$ 4.2), which indicated stagnant disorders in the kidneys, hidden from conventional diagnostic methods. The patients in Group II had those abnormalities even more expressed (A 12.4 $\pm$ 4.5 sec, V 12.8 $\pm$ 9.4%, D 51.9 $\pm$ 15.4%, KC 5.0 $\pm$ 3.3; KP 9.5 $\pm$ 5.2).

16 patients under follow-up who had arterial hypertension with serum creatinine levels greater than 125 μ mol/l were classified as a subgroup of patients at an increased risk of developing high stages of CKD. Stages I-II were previously diagnosed in the 16 patients according to the CKD-EPI formula and stage III CKD with a high risk of progression to stage IV CKD was diagnosed in one patient.

A comparative analysis of the SENS-CRS data of the patients with arterial hypertension was performed between the above-mentioned 16 patients and the remaining 71 patients. The nonparametric Mann-Whitney method was used (p<0.05) for the purpose. The method was established only by the indicator D (%) of the rate of elimination of the radiopharmaceutical from the renal parenchyma. However, no significant differences were found either for the calculated GFR values, or for all other parameters of complex renoscintigraphy

Conclusion: After the gout diagnosis is made and confirmed by screening, it is important that patients with gout and hypertension should be included in the nephrologic monitoring system to control risk factors associated with the development or aggravation of CKD.

The renocortical parameter D (%), used in the SENS-CRS technology, is a prognostically important preclinical marker of intrarenal congestion in the latent development of serious morphofunctional disorders in the renal parenchyma leading to the development of CKD or the aggravation of an existing stage of CKD.

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