Projected benefits of gout control on the health and economic burden of CKD patients with uncontrolled gout

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Introduction
- Gout affects 1 in 4 patients with stage 3-5 CKD and is an independent risk factor for CKD progression.¹
- Urate lowering therapies (ULTs) cannot manage gout in some CKD patients.² This study examined potential benefits of serum urate (SU) lowering with pegloticase in CKD patients with refractory gout.

Baseline Results
- The prevalence of CKD in the US is projected to increase by 17.1% between 2023 and 2035, with stage 3-5 CKD increasing by 35.8%.
- The number of people living with comorbid gout and CKD was projected to increase by 21.8%, from 7.9M (2.7M with uncontrolled gout) in 2023 to 9.6M (3.3M with uncontrolled gout) by 2035.
- 2.7M virtual CKD patients with gout were expected to have tophi by 2035.
- The direct healthcare costs of gout in the CKD population were projected to reach $47.3B by 2035, a 21.8% increase from 2023.

Objective
- To quantify the potential health and economic benefits of controlling gout by lowering SU in refractory uncontrolled gout patients in the US CKD population between 2023 and 2035.

Methods
A validated microsimulation model³ was adapted and used to project the burden of gout in a virtual CKD population and project the benefits of managing uncontrolled gout with pegloticase in virtual patients that are non-responsive to or cannot tolerate oral ULT.
- Individuals in the model were assigned an eGFR, albuminuria status, and SU level.
- Those with gout were assigned complication (stroke, type 2 diabetes (T2D), hypertension) risks, direct and indirect costs, ULT treatment probability, and utility weight.
- In the intervention scenario, patients with uncontrolled gout (SU >6 mg/dL despite oral ULT use, and ≥2 gout flares/year or ≥1 tophus) were “treated” with pegloticase, assuming sustained SU <6 mg/dL through simulation end in 71% of patients.⁴
- Health and economic benefits were projected through 2035 and compared to the baseline (oral ULT use without pegloticase) scenario.

Intervention Results
- Under the pegloticase intervention scenario, 353,000 more gout cases were controlled, and 264,000 fewer patients had tophi, by 2035, compared to the baseline scenario (Fig. 1).
- Uncontrolled gout cases reduced by 10.8% in the first year.
- With SU control, 3.7M gout flares were avoided through 2035.
- Over 50,000 SU-related complications (type 2 diabetes, hypertension, and stroke) were avoided through 2035 (Fig. 2).
- In the CKD and uncontrolled gout group, $27.8B was saved cumulatively through 2035 (annual average of $2.1B: Fig. 3).
- The scenario resulted in 7.7M working days gained, and 273,000 quality-adjusted life years gained through 2035.

Conclusion
- The prevalence of gout in CKD patients is projected to markedly increase over the next 12 years.
- This microsimulation suggests that successful treat-to-target urate-lowering could result in health, economic, and quality of life improvements for gout patients.

References:

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