References:

Results: We found relatively steady low rates of immunomodulation co-therapy with pegloticase from 2014 through 2018 ranging from 1% in 2016 to 4% in 2018 (Figure 1). In 2019 however, the proportion of pegloticase patients that were co-treated with methotrexate or azathioprine therapy increased to 15%. Most patients were started on immunomodulating therapy 20 days before to 10 days after initiation of pegloticase. Methotrexate was the more frequently used immuno- modulation co-therapy as compared to azathioprine.

Figure 1: Proportion of pegloticase patients receiving immunomodulation therapy by year

Conclusion: We found evidence of a relatively dramatic increasing initiation of immunomodulation therapy with pegloticase beginning soon after a November 2018 presentation of a case series which demonstrated improved response rates of pegloticase when co-administered with methotrexate. These data indicate that clinicians began to more frequently employ a strategy of DMARD co-therapy with pegloticase in 2019 to improve response rates to this important gout medicine.

References:

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Background: Acute calcium pyrophosphate (CPP) crystal-induced inflammation is characterized by the massive release of cytokines and pro-inflammatory mediators and, from a clinical point of view, pain and limited joint function. Contrary to the precipitation of urate crystals that can be prevented through the use of hypouricemic drugs, there is no pharmacological therapy that can prevent the formation of pyrophosphate crystals.

Objective: To examine medical claims database from 2014-2019 for trends in immunomodulation therapies being co-prescribed with pegloticase.

Methods: An IQVIA claims database (November 2014 to October 2019) representing 1.3 billion claims, covering 30 million patients diagnosed with gout or CKD, was utilized to search for patients who had received pegloticase. Patients who had received pegloticase were classified as having been on an immunomodulating co-therapy if they were prescribed methotrexate or azathioprine within 60 days before or after initiation of their first pegloticase infusion.

Conclusions: We found evidence of a relatively dramatic increasing initiation of immunomodulation therapy with pegloticase beginning soon after a November 2018 presentation of a case series which demonstrated improved response rates of pegloticase when co-administered with methotrexate. These data indicate that clinicians began to more frequently employ a strategy of DMARD co-therapy with pegloticase in 2019 to improve response rates to this important gout medicine.

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References:
Background: The close relationship between gout and cardiovascular diseases is well established. A growing hypothesis explaining this association would be that monosodium urate (MSU) crystals are deposited within vessel walls. Dual-energy computed tomography (DECT) can identify and quantify MSU crystal deposition in soft tissues. It remains unclear whether vascular spots exhibit DECT attenuation characteristics of MSU are artefacts or true MSU crystal deposits.

Methods: Patients with a clinical suspicion or established gout diagnosis prospectively underwent DECT for identification and quantification of the MSU crystal burden in their knees and feet. Some of these patients were also enrolled in the GOUT-DECTUS longitudinal study, and thus underwent follow-up DECT scans of their knees and feet at 6, 12 and 24 months. DECT scans were examined for the presence of vascular spots ≥0.01 cm³ classified as MSU crystal deposits according to the default post-processing settings. Multiple linear regressions adjusting on serum urate levels and gout diagnosis were implemented to determine the association between DECT MSU crystal volume in joint soft tissues, and the presence of vascular MSU deposits.

Results: A total of 169 patients were included, of which 140 had a final diagnosis of gout, including 15 also included in the longitudinal study. Patients were mostly male (78.8%) and were 65.5 ± 14.6 years old. Among gout patients, disease duration was 9.3 ± 9.9 years and 56.5% were urate lowering therapy-naïve. A total of 11/29 (37.9%) controls and 40/140 (28.6%) gout patients presented with a least one vascular spot of DECT MSU deposition, with an average volume of 0.02 ± 0.02 cm³, and all subjects also presented at least one vascular calcification. In the feet, patients positive for vascular DECT MSU crystal deposition had an MSU volume of 3.81 ± 10.06 cm³ in joint soft tissues, compared with 0.45 ± 0.03 cm³ in joint soft tissues in controls and 0.02 ± 0.02 cm³, and all subjects also presented at least one vascular calcification. In the mice treated with CPP crystals, histological analysis revealed areas of edema and increased cell infiltrate in articular and periarticular tissues and the presence of reactive lymph nodes. Tissue necrosis around inflamed tissue has been observed. Treatment with PD and colchicine showed to be effective in the therapeutic protocol.

Conclusion: PD can effectively prevent acute inflammatory response to crystals in the mouse model of CPP arthritis. Oral PD prophylactic treatment showed a similar effect of colchicine in reducing ankle swelling and cell infiltrate. However, only colchicine showed to be effective in the therapeutic protocol. These results raise the possibility that PD might have utility in the prevention of crystal-induced acute attacks in humans.

References:

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