Methods: Audit criteria were derived from the latest BSR gout guideline (Hui et al; 2017). A randomised sample of adult patients with a read code for the diagnosis of gout from Jan 2006-Jan 2018 was chosen from six large general practices in Leicestershire County of the United Kingdom. The data collected included demographics, provision of patient information, management of acute attacks and prophylactic treatment, screening of appropriate co-morbidities, dosing of urate-lowering therapy (ULT) and titration of doses against measurement of uric acid levels.

Results: Data was obtained for 861 patients. The mean age was 60 years and 91% were male, 21.5% were recorded as being provided with written information about gout and 60.5% of patients were treated with NSAIDs and COXIBs for acute attacks of gout. When colchicine was prescribed to patients, 71% had no dose recorded in their clinical records. 323 (37.5%) of patients were prescribed a ULT and the recorded starting dose of allopurinol was 100mg daily for 73.8%. Titration of subsequent allopurinol doses was recorded in only 21% of patients. 539 patients (62.6%) had no record of a serum urate level check after starting ULT.

Conclusion: Clinical records indicate that the management of gout by UK General Practitioners in Primary Care is suboptimal in concordance with the BSR guidelines. It was clear that general practices did not employ the treat to target strategy. There is a clear need for increased GP awareness and adherence to the BSR guidelines in order to optimise deficient areas of care, particularly in patient education, initiation and titration of ULT and monitoring of serum urate levels in gout patients. Appropriate patient recording templates are needed so that key information is captured during a patient consultation in order to enable medicines optimisation for those with gout. Most aspects of gout management in primary care did not concord well with published BSR guidelines.

REFERENCES

- [1] Kuo, C., Grainge, M.J., Mallen, C., Zhang, W. and Doherty, M. (2014) Rising burden of gout in the UK but continuing suboptimal management: a nationwide population study. *Annals of the Rheumatic Diseases*, [online] 74(4) pp.661-667.
- [2] Hui, M., Carr, A., Cameron, S., Davenport, G., Doherty, M., Forrester, H., Jenkins, W., Jordan, K., Mallen, C., McDonald, T., Nuki, G., Pywell, A., Zhang, W. and Roddy, E. (2017) The British Society for Rheumatology Guideline for the Management of Gout. *Rheumatology*, [online] 56 (7) pp. e1-e20.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.8137

SAT0448 ATP IS THE SECOND KEY SIGNAL OF GOUT FLARE BESIDES MSU

Hong-Liang Zhang¹, Zi-Wen Zhu², Jinhui Tao^{1,3}, Yu-Jie Tang¹, Li Xin-Ya¹, Li Lin², Qun-Qun Lu². ¹Division of Life Sciences and Medicine, University of Science and Technology of China, Hefei, China; ²Anhui Medical University Affiliated Provincial Hospital, Hefei, China; ³Anhui Medical University Affiliated Provincial Hospital, Hefei, China

Background: Gout is an inflammatory disease associated with hyperuricemia and characterized by recurrent arthritis. In previous study, MSU which generated by hyperuricemia was recognized by the toll-like receptor and NOD receptor of the intrinsic immune system, then activated the NALP3 inflammasome to induce the secretion of IL-1 β , causing gout. However, this mechanism cannot explain why most patients with hyperuricemia do not have gout attacks in clinical practice, suggesting that there may be other pathogenic signals in the flare of gout. Our team previously found that P2X7R might play a key regulatory role in the pathogenesis of gout^[1]. What's more, single nucleotide polymorphisms associated with P2X7R function regulate the onset of gouty arthritis^[2], suggesting that ATP, as the ligand of P2X7R, may be a second key signal in addition to MSU to stimulate gout attack.

Objectives: To understand whether ATP act as a key factor in gout development besides MSU.

Methods: The rat hyperuricemia model was prepared by intraperitoneal injection of the urate inhibitor oxazinic acid. Followed by ATP injection into the tail vein to observe the incidence of arthritis and compared with the Coderre's method-established gouty arthritis^[3].

Results: Forty hyperuricemia rats were prepared and 0.5ml ATP (10mM) solution was injected into the tail vein of the rat respectively, about 95% (38 rats) developed spontaneous arthritis. This type of spontaneous arthritis is very different from the Coderre's method in the following aspects: (1) The onset time of spontaneous arthritis is faster. The time of joint swelling in spontaneous arthritis peaked at 6.0 $\pm$ 2.0 hours after ATP injection, while it took 2 to 3 days for arthritis caused by local injection of

MSU to reach its peak. (2) The affected joints were different: The Coderre's method joints swelling only at the MSU injection site. Spontaneous arthritis can involve multiple joints, in which 71% have one joint affected, 21% have two joints affected and 8% with three or more than three joints affected by redness and swelling. (3) Distinct histopathologic characteristic: In Coderre's method, lymphocytes caused by local injection account for about 60%, with fewer neutrophils; In spontaneous arthritis, neutrophils account for more than 90% and lymphocytes are less. (4) Different sources of MSU: there is local MSU in spontaneous arthritis, which is associated with hyperuricemia; the local presence of MSU in Coderre's arthritis was artificially injected.

Conclusion: The spontaneous arthritis due to the synergistic effect of ATP and MSU is consistent with the characteristics of human gout arthritis, suggesting that ATP is the key second signal besides MSU to stimulate gout attack.

REFERENCES

- [1] Tao JH, Zhang Y, Li XP. P2X7R: A potential key regulator of acute gouty arthritis. *Semin Arthritis Rheum*. 2013; 43(3): 376-380.
- [2] Tao JH, Cheng M, Tang JP, et al. Single nucleotide polymorphisms associated with P2X7R function regulate the onset of gouty arthritis. *PLoS One*. 2017 Aug 10;12(8):e0181685.
- [3] Coderre TJ, Wall PD. Ankle joint urate arthritis (AJUA) in rats: An alternative animal model of arthritis to that produced by Freund's adjuvant. *Pain*. 1987; 28(3):379-93.

Acknowledgement: This work was supported by grants from the National Natural Science Foundation of China (81771774) and the Anhui Provincial Natural Science Foundation (1708085MH191)

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.7510

SAT0449 EFFECT OF CHOLESTEROL AND TRIGLYCERIDE ON THE FREQUENCY OF GOUT ATTACKS

LI Lin¹, Qun-Qun Lu¹, Jinhui Tao², Hong-Liang Zhang², Yu-Jie Tang², Li Xin-Ya², Zi-Wen Zhu¹. ¹Anhui Medical University Affiliated Provincial Hospital, Department of Rheumatology and Immunology, Hefei, China; ²The First Affiliated Hospital of USTC, Division of Life Sciences and Medicine, University of Science and Technology of China, Department of Rheumatology and Immunology, Hefei, China

Background: Gout is an autoinflammatory disease characterized by hyperuricemia and recurrent arthritis. ATP and MSU synergistically activate NALP3 inflammasome to induce the secretion of IL-1 β , leading to the onset of gouty arthritis, and P2X7R plays a key role in gout^[1,2]. This mechanism above can explain the clinical phenomenon that some patients with hyperuricemia never suffer gouty arthritis, however, it cannot explain why the frequency of gout attacks increases as the course prolongs. Cholesterol or triglyceride can activate the innate immune and induce inflammatory response. It is speculated that Cholesterol and triglyceride levels can increase with the duration of gout, and they may reduce the threshold of gout attacks.

Objectives: To demonstrate the effect of elevated cholesterol and triglyceride on the onset of gout.

Methods: A cohort study was performed to observe the difference of arthritis episodes between the high cholesterol group and the normal, the high triglyceride group and the normal in gout patients. The frequency of gout attacks was compared using statistical methods of independent sample test and paired sample test between the two groups.

Results: A cohort study was performed to observe the difference of arthritis episodes between the high cholesterol group and the normal, the high triglyceride group and the normal in gout patients. The frequency of gout attacks was compared using statistical methods of independent sample test and paired sample test between the two groups.

RESULTS: A total of 68 patients with gout were observed. Among them, 21 were in normal cholesterol group, 13 in elevated group, 21 in normal triglyceride group and 13 in elevated group. The results of the independent sample test between the two groups are as follows: (1) The frequency of gout attacks between the normal cholesterol group and the elevated group is statistically significant within three months, six months and one year (0.81 $\pm$ 0.60 vs 1.77 $\pm$ 0.83, Z=3.200, P=0.001; 1.14 $\pm$ 0.73 vs 3.15 $\pm$ 2.15, Z=-3.430, P=0.001; 1.43 $\pm$ 0.81 vs 4.77 $\pm$ 3.44, Z=-3.199, P=0.001). (2) The frequency of gout attacks between the normal triglyceride group and the elevated group is statistically significant within three months, six months and one year (0.81 $\pm$ 0.60 vs 1.54 $\pm$ 0.97, Z=-2.359, P=0.018; 1.14 $\pm$ 0.73 vs 2.38 $\pm$ 1.66, Z=-2.417, P=0.016; 1.43 $\pm$ 0.81 vs 3.54 $\pm$ 2.50, Z=-3.005, P=0.003). The results of the paired sample test between