

# Infographics to Facilitate the Diagnosis and Management of Giant Cell Arteritis and Gout by Emergency Physicians

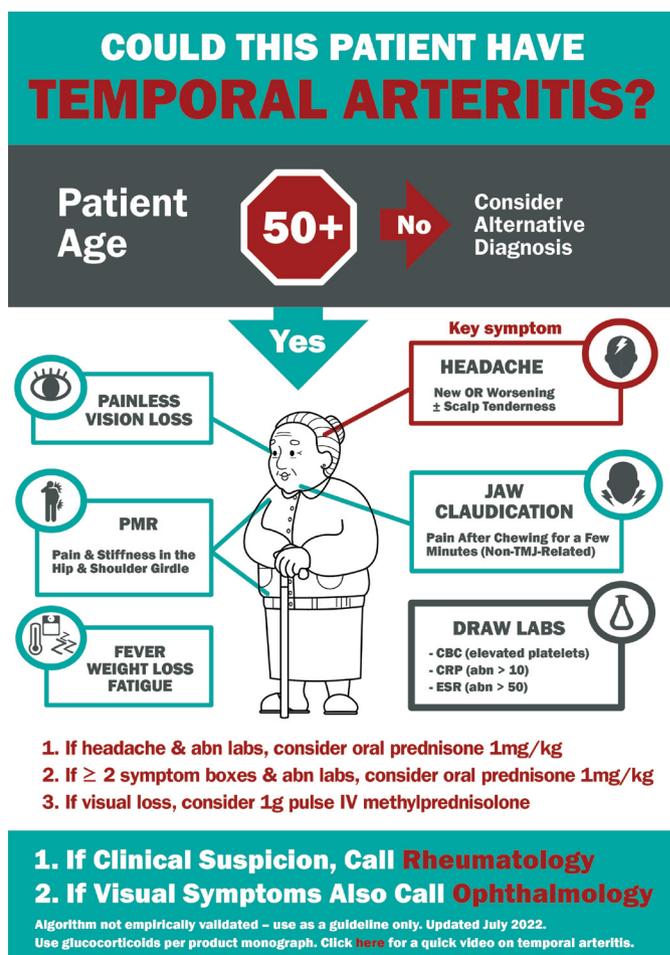
By Monish Ahluwalia, MSc; Sabrina Campbell, HBS; Sangeeta Bajaj, MD, FRCPC; Raman Joshi, MD, FRCPC; Tripti Papneja, MD, FRCPC; and Vandana Ahluwalia, MD, FRCPC

Patients with rheumatologic complaints account for up to 8% of all emergency department visits.<sup>1</sup> Two diagnostic challenges of interest are giant cell arteritis (GCA) and gout. GCA is a medium-large vessel vasculitis with low prevalence, high morbidity, and variable presentation, making it a difficult diagnosis and one where patients often first present to the emergency department.<sup>2,3</sup> Models suggest that referrals for GCA could be better triaged to avoid unnecessary imaging, specialist referrals, and temporal artery biopsies.<sup>4,5</sup> Gout is a urate crystal arthropathy with increasing prevalence and increasing associated healthcare costs, yet still characterized by suboptimal treatment and patient outcomes.<sup>6,7</sup> Retrospective cohort analyses demonstrate that more than 30% of patients with a diagnosis of an acute gout flare may not receive anti-inflammatory medications and that medication errors in gout treatment are common.<sup>8-11</sup> Despite the importance of these diagnoses in clinical practice, much of the literature is not directed toward emergency physicians and additional educational resources are required.<sup>2</sup>

Unfortunately, continuing medical education for physicians is challenging due to overwhelming volumes of literature, time constraints, and imperfect information retention.<sup>12</sup> The awareness-to-adherence model describes that physicians who are regularly trying to implement knowledge into practice first require awareness, agreement, and intention.<sup>13</sup> To mitigate these barriers, infographics have been used to improve both exposure and knowledge.<sup>12</sup>

Infographics (or information graphics) are data visualizations that can convey large amounts of complex information succinctly and comprehensibly.<sup>12,14</sup> Infographics have been shown to be superior to text alone in terms of information retention due to a phenomenon known as the picture superiority effect – the idea that pictures are more likely to be remembered than words.<sup>14,15</sup> Compared to text-based resources, infographics are associated with higher reader preference, decreased cognitive load, and increased accessibility online and on mobile devices, which are preferred by emergency physicians.<sup>12,16</sup>

Thus, we created two infographics that illustrate the emergency diagnosis and management of GCA and gout. Our goal was to provide easily accessible and consumable



**1. If Clinical Suspicion, Call Rheumatology**

**2. If Visual Symptoms Also Call Ophthalmology**

Algorithm not empirically validated – use as a guideline only. Updated July 2022.  
Use glucocorticoids per product monograph. Click [here](#) for a quick video on temporal arteritis.

educational resources for emergency physicians (Figures 1 and 2). These serve as clinical diagnostic and management tools that providers can use on-the-job, while also being available as posters and educational tools for practicing physicians, medical trainees, and other healthcare professionals. If a rheumatologist receives a referral for one of these conditions, they may consider attaching the infographic in their letter back to the referring provider or posting the infographic on their clinic website to promote continuing education.

The GCA infographic was created using the 1990 and 2016 American College of Rheumatology (ACR) diagnostic



## COULD THIS BE GOUT?



Patients with gout are often:

Males  $\geq 40$

Post - Menopausal Women

It is very rare for pre-menopausal women to get gout

Risk Factors Include



### Symptoms of Gout:

Sudden, Severe Joint Pain

Most Often Monoarticular MTP Joint

Redness, Swelling & Tenderness

Tophi

Sometimes Polyarticular



### Diagnosing Gout



**Bloodwork:**  
Uric acid level  
ESR and/or CRP  
Creatinine



**Joint Aspiration:**  
Cell count & diff  
Crystal analysis  
Gram stain & culture



**Joint X-ray:**  
Consider to look for damage

### Management

1st Option

**NSAIDs**

Indomethacin 50mg TID  
Naproxen 500mg BID  
Celecoxib 200mg BID

2nd Option

**STEROIDS**

Injection  
IM 120mg methylprednisolone  
Knee 60mg methylprednisolone  
Oral prednisone 30mg x7-14d  
(continue 1-2d after resolution)

3rd Option

**COLCHICINE**

0.6mg BID x7-14d

If patient is on allopurinol, DO NOT discontinue

Refer to Rheumatology if  $\geq 2$  attacks in 1 year  
OR tophi/radiographic damage

criteria and 2021 ACR and 2018 European League Against Rheumatism (EULAR) management recommendations.<sup>17-20</sup>

The gout infographic was created using the 2020 ACR guidelines for gout management.<sup>21</sup> Each infographic was created in collaboration with four community rheumatologists to ensure accuracy and appropriateness, and reviewed with multiple community emergency physicians to ensure relevance. In addition, the GCA infographic is paired with a video synopsis by Dr. Joanne Jiang, a vasculitis fellow in Toronto, which can be found hyperlinked at [youtube.com/watch?v=7bcJQTRztX8](https://www.youtube.com/watch?v=7bcJQTRztX8).

The infographics available in this article are to be used as a guideline only and may be re-distributed in their unmodified form in a non-commercial manner. Specifically, the algorithm proposed in the GCA infographic has not been empirically validated; however, future research will analyze its performance in classifying referrals from the emergency department.

Disclosure: The creation of these infographics was supported by F. Hoffmann-La Roche AG through an unrestricted educational grant.

The authors' full credentials are available in the online edition at [craj.ca](http://craj.ca).

#### References:

- Schlosser G, Doell D, Osterland C. An analysis of rheumatology cases presenting to the emergency room of a teaching hospital. *J Rheumatol*. 1988; 15(2):356-358.
- Lacy A, Nelson R, Kofman A, Long B. High risk and low prevalence diseases: Giant cell arteritis. *Am J Emerg Med*. 2022; 58:135-40.
- Lazarewicz K, Watson P. Giant cell arteritis. *BMJ*. 2019 May 30; 365:11964.
- Weis E, Waite C, Roelofs KA. A predictive model for temporal artery biopsy in the setting of suspected giant cell arteritis: a validation study. *Ophthal Plast Reconstr Surg*. 2021; 37(3S):S23-S26.
- Melville AR, Donaldson K, Dale J, et al. Validation of the Southend giant cell arteritis probability score in a Scottish single-centre fast-track pathway. *Rheumatol Adv Pract*. 2022; 6(1):rkab102.
- Jinno S, Hasegawa K, Neogi T, et al. Trends in emergency department visits and charges for gout in the United States between 2006 and 2012. *J Rheumatol*. 2016; 43(8):1589-1592.
- Singh JA, Mikuls TR. The problem with gout is that it's still such a problem. *J Rheumatol*. 2016; 43(8):1453-1455.
- Schlesinger N, Radvanski DC, Young TC, et al. Diagnosis and treatment of acute gout at a university hospital emergency department. *Open Rheumatol J*. 2015; 9:21.
- Brunetti L, Vekaria J, Lipsky PE, et al. Treatment of Acute Gout Flares in the Emergency Department: Prescribing Patterns and Revisit Rates. *Ann Pharmacother*. 2022; 56(4):422-429. doi:10.1177/10600280211032295.
- Towiwat P, Phungoen P, Tantrawiwat K, et al. Quality of gout care in the emergency departments: a multicentre study. *BMC Emerg Med*. 2020; 20(1):27. doi:10.1186/s12873-020-00319-w.
- Singh JA. Quality of life and quality of care for patients with gout. *Curr Rheumatol Rep*. 2009; 11(2):154-160.
- Martin LJ, Turnquist A, Groot B, et al. Exploring the role of infographics for summarizing medical literature. *Health Prof Educ*. 2019; 5(1):48-57. doi:10.1016/j.hpe.2018.03.005.
- Pathman DE, Konrad TR, Freed GL, et al. The awareness-to-adherence model of the steps to clinical guideline compliance: the case of pediatric vaccine recommendations. *Med Care*. 1996; 34(9):873-889.
- Scott H, Fawcner S, Oliver C, et al. Why healthcare professionals should know a little about infographics. *Br J Sports Med*. 2016; 50:1104-1105. doi:10.1136/bjsports-2016-096133.
- Paivio A, Csapo K. Picture superiority in free recall: Imagery or dual coding? *Cognit Psychol*. 1973; 5(2):176-206.
- Kalnaw A, Beck-Esmay J, Riddell J, et al. Continuing medical education delivery preferences among physicians and advanced practice providers in emergency medicine. *Cureus*. 2021;13(12).
- Hunder GG, Bloch DA, Michel BA, et al. The American College of Rheumatology 1990 criteria for the classification of giant cell arteritis. *Arthritis Rheum*. 1990; 33(8):1122-1128.
- Maz M, Chung SA, Abril A, et al. 2021 American College of Rheumatology/Vasculitis Foundation guideline for the management of giant cell arteritis and Takayasu arteritis. *Arthritis Care Res*. 2021; 73(8):1071-1087.
- Hellich B, Agueda A, Monti S, et al. 2018 Update of the EULAR recommendations for the management of large vessel vasculitis. *Ann Rheum Dis*. 2020; 79(1):19. doi:10.1136/annrheumdis-2019-215672.
- Salehi-Abari I. 2016 ACR revised criteria for early diagnosis of giant cell (temporal) arteritis. *Auto-immune Ther Approaches Open Access*. 2016; 3:1-4.
- FitzGerald JD, Dalbeth N, Mikuls T, et al. 2020 American College of Rheumatology guideline for the management of gout. *Arthritis Care Res*. 2020; 72(6):744-760.