

Literature Review

Polymyalgia Rheumatica: A Comprehensive
Review of Current Knowledge

2025

Data Summary

This document was developed for a CDC-sponsored project, Building Capacity for Polymyalgia Rheumatica Education and Awareness, (CDC-RFA-DP23-0067).



Literature Review Overview

To better understand PMR and the challenges patients face, we conducted a **literature review**. A literature review examines existing research to identify what is known and where gaps remain. Using the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines, we developed a structured approach to ensure a thorough and transparent review, focusing on key areas such as symptoms, diagnosis, treatment, quality of life, and long-term outcomes.

To read more about our methods, [view the abstract here](#).

Methods

We started by asking key questions about PMR's symptoms, its impact on different populations, and the best ways to diagnose and treat it. To find relevant studies, we searched PubMed and Embase using terms like "polymyalgia rheumatica" and "giant cell arteritis," focusing on clinical trials while excluding preclinical research. After screening **319 studies**, we selected **127** that met strict criteria, such as clear methods and reliable findings. Our team independently reviewed summaries and full texts, excluding studies with small sample sizes or unclear conclusions. Most included studies examined treatments, while fewer addressed diagnosis, prognosis, or health disparities.

Findings

Our review revealed that PMR and giant cell arteritis (GCA) are frequently studied together due to their overlapping symptoms and treatments. This highlighted key challenges, including the need for improved diagnostic tools and safer treatment options to reduce long-term steroid use. PET scans and ultrasounds showed promise for better diagnosis, while tocilizumab emerged as a potential steroid-sparing treatment. We also identified a significant gender imbalance in study participants **(5,740 females vs. 2,545 males)**, emphasizing the need for further research into hormonal, genetic, and social factors influencing these conditions.

Polymyalgia Rheumatica (PMR) Diagnosis

> The Role of Imaging

Most studies (79%) on PMR diagnosis focus on imaging tests.

> FDG PET/CT Scans

Most commonly used imaging test for PMR.

Highly accurate in ruling out PMR (82%–99.8% specificity).

> Ultrasound and Doppler Scans

Show strong accuracy (65.7%–99.1% specificity).

Helpful in detecting inflammation and blood vessel changes.

MRI and Ultrasound for Shoulder Inflammation:

MRI found bursitis (joint inflammation) in 100% of PMR patients.

Ultrasound detected bursitis in 94% of cases.

Giant Cell Arteritis (GCA) Diagnosis

> Key Symptoms

Headaches, jaw pain while chewing (jaw claudication), and vision problems.

> Blood Test Markers

Elevated CRP and ESR levels are common in GCA patients.

> Imaging Tests for Diagnosis

PET/CT, MRI, and Ultrasound are highly accurate for detecting GCA.

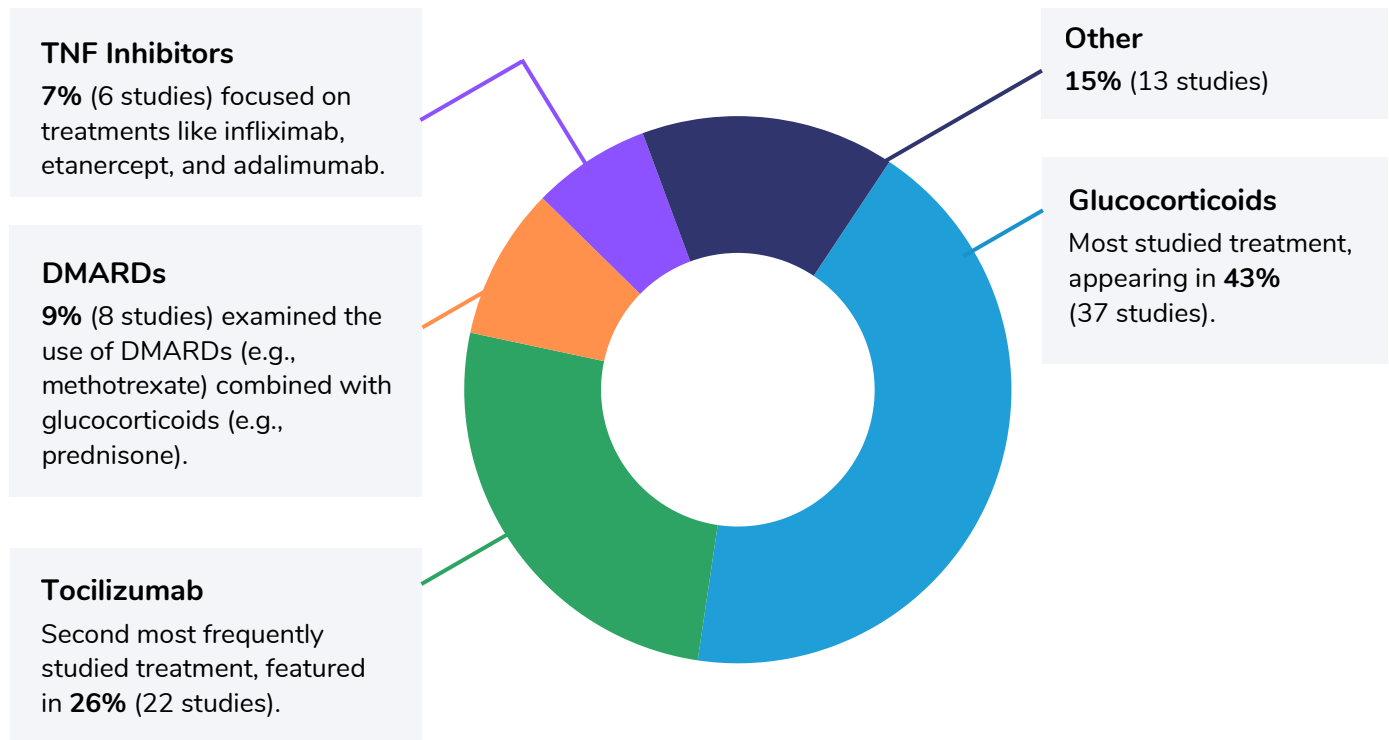
PET/CT is particularly useful for identifying inflammation in both large and small arteries.

MRI can detect artery inflammation even in patients already on steroids.

Ultrasound's "halo sign" is a strong indicator of GCA and may reduce the need for a temporal artery biopsy (TAB).

Summary of Treatment Studies

Among the 127 studies reviewed in full, **86 focused on treatments** for PMR, GCA, or both conditions.



Upper respiratory infections were commonly reported as adverse events in several studies, particularly with treatments involving monoclonal antibodies, TNF blockers, IL-6 receptor inhibitors, and glucocorticoids. Metabolic disturbances, such as hyperglycemia and poor diabetic control, were reported as adverse events associated with treatments, particularly involving glucocorticoids in four studies.

A complete bibliography of all studies referenced in the literature review is available for review [here](#).

Key Takeaways



Higher Research Focus on GCA

The larger study enrollment for GCA compared to PMR may indicate a higher perceived disease burden, more severe complications (such as vision loss and strokes), and a more definitive diagnostic process. This could explain why GCA receives greater research attention and larger study samples.



Gender Disparities in Disease and Research

Female participants significantly outnumber male participants in PMR and GCA studies. Further research is needed to explore potential hormonal, genetic, or social factors influencing these disparities.



Viral and Environmental Triggers in Disease Onset

The association between viruses (such as HPIV-1 and Epstein-Barr virus) and GCA, particularly in biopsy-positive cases, suggests that infections might play a role in disease initiation, not just in PMR, but across autoimmune and inflammatory conditions. Additionally, smoking has been identified as a significant risk factor for GCA, particularly in women, reinforcing the need for preventive strategies.



Advancements and Limitations in Diagnosis

The discussion highlights evolving diagnostic strategies for GCA, including imaging modalities such as PET/CT, MRI, and ultrasound. While temporal artery biopsy (TAB) remains the standard, emerging technologies like FF-OCT (Full-Field Optical Coherence Tomography) could improve diagnostic accuracy. However, current limitations, such as biomarker variability and the impact of glucocorticoid treatment on test sensitivity, suggest the need for more standardized diagnostic approaches. Additionally, there is a notable lack of studies examining differences in PMR and GCA by race, insurance type, and geographic region. This gap limits understanding of how these factors may influence disease presentation, management, and outcomes.



Gaps in Treatment and Prognosis Research

The variability in ESR and other biomarkers in response to corticosteroid treatment emphasizes the need for more reliable disease activity markers. Research gaps in the long-term impact of treatments, including their effects on bone health and comorbid conditions, indicate the necessity of longitudinal studies to optimize management strategies for PMR and GCA. Studies on Patient Reported Outcomes (PROs) were limited and identified as a research gap.