Supplemental table 1: Study definitions

Imaging modalities included to determine presence of large vessel vasculitis	1) Computed tomography angiography (CTA) 2) Magnetic resonance angiography (MRA) 3) 18F-Fluorodeoxyglucose Positron emission tomography (PET) 4) 18F-Fluorodeoxyglucose Positron emission tomography with computed tomography (PET-CT) 5) Colour duplex sonography (CDS)
Arterial findings consistent with presence of large vessel vasculitis	1) Non-atherosclerotic wall thickening ≥ 2 mm (CTA, MRA) 2) Delayed contrast enhancement (CTA, MRA) 3) Non-atherosclerotic arterial stenosis or occlusion (CTA, MRA) 4) Increased arterial hypermetabolism (higher than liver uptake) [PET, PET-CT] 5) Hypoechoic wall thickening, temporal artery (CDS)
Remission	Absence of signs/symptoms attributable to GCA and absence of elevated erythrocyte sedimentation rate (ESR) or C-reactive protein (CRP)
Relapse	Defined as either of the following if GC therapy was increased with subsequent improvement: (i) new onset or reappearance of signs/symptoms compatible with GCA with an associated increase in inflammatory markers *[symptom + lab relapse*] (ii) new onset or reappearance of signs/symptoms compatible with GCA without an associated increase in inflammatory markers [*symptom only relapse*] (iii) isolated increase in inflammatory markers without GCA signs/symptoms or other explainable etiology present (particularly infection). Laboratory elevation had to be persistent over two separate readings ≥ 2 weeks apart. In accordance with local laboratory standard references ranges, inflammatory marker elevation was defined as a CRP level >8 mg/l and/or ESR by the Westergren method >22 mm/h for men and >29 mm/h for women [*lab only relapse*].

Active disease	Ongoing sign/symptoms and/or ongoing elevated ESR/CRP attributable to GCA for which remission has not been achieved.
Adverse events of special interest	Hepatotoxicity (elevation > 3 times the upper limit of normal) Myocardial infarction Deep vein thrombosis Pulmonary embolism Anaphylaxis Intractable nausea Severe diarrhea Diverticulitis Bowel perforation Infection requiring hospitalization Fracture Cancer Anemia with hemoglobin < 8 gm/dl Neutropenia with absolute count < 500 Thrombocytopenia with platelets < 10 x 10^9/ul
GCA related serious adverse events	Visual loss (transient or fixed) Diplopia Stroke attributable to GCA Critical limb ischemia Aortic aneurysm development Aortic dissection

Supplemental Table 2: Distribution of large-vessel arterial findings on computed tomography angiography or magnetic resonance angiography in patients that met radiographic study inclusion criteria but did not fulfill ACR/EULAR 2022 classification criteria

Patient	Carotid/Vertebral	Subclavian	Thoracic Aorta	Abdominal Aorta	Iliofemoral
1			+		
2	+	+	+	+	
3				+	+
4				+	
5		+			+
6			+	+	
7					+
8			+	+	
9		+	+	+	
10	+	+	+	+	
11			+		
12	+	+			
13		+	+	+	
14			+		
15		+	+	+	
16		+	+		
17					+

Supplemental Table 3. Risk Factors adjusted for age and sex for relapse after TCZ start and after TCZ discontinuation

Risk Factors	Relapse after TCZ start, HR (95% CI)	Relapse after TCZ discontinuation HR (95% CI)
Subcutaneous vs IV TCZ	0.78 (0.39-1.54)	0.35 (0.06-2.04)
High[a] vs Low[b] dose TCZ	0.74 (0.43-1.28)	0.75 (0.33-1.70)
Time to TCZ start after GCA diagnosis	0.82 (0.47-1.43)	0.89 (0.41-1.93)
DMARD at TCZ initiation	0.96 (0.53-1.75)	1.41 (0.61-3.24)
PMR at GCA diagnosis	1.43 (0.82-2.52)	1.36 (0.63-2.94)
PMR at TCZ start	1.09 (0.51-2.34)	0.72 (0.22-2.34)
Vision symptoms at GCA diagnosis	1.51 (0.86-2.68)	0.69 (0.29-1.60)
Vision symptoms at TCZ start	1.10 (0.55-2.21)	0.94 (0.38-2.33)
Cranial symptoms at GCA diagnosis	**2.29 (1.07-4.91)**	1.59 (0.58-4.41)
Cranial symptoms at TCZ start	1.45 (0.83-2.53)	0.93 (0.40-2.15)
Large Vessel Vasculitis at GCA diagnosis	0.80 (0.46-1.42)	1.45 (0.65-3.25)
Large Vessel Vasculitis at TCZ start	0.94 (0.54-1.63)	1.32 (0.60-2.92)
Never smoker vs ever smoker at GCA diagnosis	1.17 (0.66-2.05)	0.55 (0.22-1.34)
Obesity (BMI ≥30)	1.26 (0.68-2.35)	0.83 (0.34-2.03)
Diabetes Mellitus at GCA diagnosis	0.44 (0.17-1.11)	0.89 (0.29-2.72)
Aspirin treatment at GCA diagnosis	0.64 (0.36-1.14)	0.96 (0.40-2.30)
Statin treatment at GCA diagnosis	1.20 (0.68-2.12)	**0.38 (0.15-0.97)**
Off glucocorticoids at TCZ start	0.60 (0.08-4.42)	
Glucocorticoid Discontinuation (any time)	0.52 (0.25-1.073)	
Reduction of TCZ dose before stop		1.47 (0.19-11.34)
Age ≥80 vs <80		1.00 (0.98-1.57)
Duration of TCZ prior to TCZ discontinuation		1.00 (0.98-1.04)
Sex (reference female)	1.19 (0.69-2.05)	0.99 (0.42-2.35)

Supplemental Table 4. Risk factors for adverse events of special interest adjusted for age and sex

Risk Factor	Hazard Ratio (95% CI)
Subcutaneous vs IV TCZ	0.99 (0.15-6.41)
High[a] vs Low dose[b] TCZ	1.12 (0.43-2.93)
DMARD at TCZ initiation	1.11 (0.40-3.04)
PMR at GCA diagnosis	1.12 (0.42-2.98)
PMR at TCZ start	1.33 (0.38-4.66)
Vision symptoms at GCA diagnosis	0.71 (0.24-2.11)
Vision symptoms at TCZ start	3.78 (1.35-0.57)
Cranial symptoms at GCA diagnosis	2.82 (0.64-12.48)
Cranial symptoms at TCZ start	0.58 (0.19-1.77)
Large Vessel Vasculitis at GCA diagnosis	0.49 (0.17-1.38)
Large Vessel Vasculitis at TCZ start	0.34 (0.11-1.05)
Never vs ever smoker at GCA diagnosis	0.64 (0.23-1.79)
Obesity (BMI ≥30)	0.93 (0.30-2.95)
Diabetes Mellitus at GCA diagnosis	1.85 (0.59-5.77)
Aspirin treatment at GCA diagnosis	1.01 (0.37-2.74)
Statin treatment at GCA diagnosis	1.02 (0.36-2.93)
Time to first relapse after TCZ start	3.31 (0.95-11.58)
Age ≥80 vs <80	0.44 (0.04-4.40)
Time to initiation of TCZ after GCA diagnosis	1.63 (0.61-4.30)