

Measuring treatment outcomes and change in disease activity in Giant Cell Arteritis: a Systematic Literature Review informing the development of the EULAR-ACR response criteria

Supplementary material

Supplementary Table S1. PICO questions

1. In GCA (P), which descriptors/criteria (I) are used to assess disease state (active disease, remission) or change in disease state thereof (O) (improvement, worsening)?
2. In GCA (P), what is the utility of using criteria/descriptor A (I) as compared to using criteria/descriptor B (C) for the assessment of disease states (active disease, remission) (O)?
3. In GCA (P), what is the utility of using criteria/descriptor A (I) as compared to not using the criteria/descriptor (C) for the assessment of disease states (active disease, remission) (O)?
4. In GCA (P), what is the utility of using criteria/descriptor A (I) as compared to using criteria/descriptor B (C) for the assessment of change of disease state (response, relapse) (O)?
5. In GCA (P), what is the utility of using criteria/descriptor A (I) as compared to not using the criteria/descriptor (C) for the assessment of change of disease state (response, relapse) (O)?

Supplementary Table S2. Search strategies

Database(s): Ovid MEDLINE(R) ALL

Search Strategy:

#	Searches	Results
1	Giant Cell Arteritis/	6631
2	Vasculitis/ and (large vessel* or giant cell or cranial or temporal or horton*).mp.	760
3	(large vessel* adj4 (vasculit* or arterit* or aortitid* or aortit* or arteritid*)).mp.	1207
4	(giant cell adj4 (vasculit* or arterit* or aortitid* or aortit* or arteritid*)).mp.	8057
5	(cranial adj4 (vasculit* or arterit* or aortitid* or aortit* or arteritid*)).mp.	233
6	(temporal adj4 (vasculit* or arterit* or aortitid* or aortit* or arteritid*)).mp.	2460
7	(horton* adj4 (disease* or syndrome* or arterit*)).mp.	654
8	LVV.mp.	447
9	GCA.mp.	3655
10	(polymyalgia adj4 arterit*).mp.	576
11	or/1-10	11392
12	exp disease progression/	188379
13	exp recurrence/	187845
14	exp Remission Induction/	44611
15	(response or responding).mp.	2596917
16	(flare? or flaring).mp.	17344
17	recover*.mp.	733427

18	(resolution* or resolv*).mp.	639571
19	disease state?.mp.	24142
20	(disease adj4 activ*).mp.	82487
21	(disease adj4 progress*).mp.	313143
22	(change adj2 disease).mp.	3636
23	improv*.mp.	2684292
24	relaps*.mp.	193505
25	refractor*.mp.	140078
26	((treatment* or therap* or intervention*) adj4 resistan*).mp.	86602
27	(inactive adj4 disease).mp.	2762
28	worsen*.mp.	97454
29	remission.mp.	157595
30	(recurr* or reoccur*).mp.	736836
31	(stable or stabiliz*).mp.	815791
32	or/12-31	7622732
33	11 and 32	3104
34	exp animals/ not (exp animals/ and exp humans/)	4805142
35	33 not 34	2974

Database(s): Embase Classic+Embase

Search Strategy:

#	Searches	Results
---	----------	---------

1	giant cell arteritis/	8904
2	exp vasculitis/ and (large vessel* or giant cell or cranial or temporal or horton*).mp.	17511
3	(large vessel* adj4 (vasculit* or arterit* or aortitid* or aortit* or arteritid*)).mp.	2479
4	(giant cell adj4 (vasculit* or arterit* or aortitid* or aortit* or arteritid*)).mp.	10305
5	(cranial adj4 (vasculit* or arterit* or aortitid* or aortit* or arteritid*)).mp.	374
6	(temporal adj4 (vasculit* or arterit* or aortitid* or aortit* or arteritid*)).mp.	5927
7	(horton* adj4 (disease* or syndrome* or arterit*)).mp.	873
8	LVV.mp.	911
9	GCA.mp.	6208
10	(polymyalgia adj4 arterit*).mp.	804
11	or/1-10	21539
12	disease exacerbation/	131049
13	recurrent disease/	190355
14	remission/	227728
15	deterioration/	55462
16	exp disease clearance/	22317
17	disease duration/	164143
18	disease activity/	80299
19	relapse/	166035
20	(response or responding).mp.	3942084

21	(flare? or flaring).mp.	33100
22	recover*.mp.	975184
23	(resolution* or resolv*).mp.	816937
24	disease state?.mp.	34635
25	(disease adj4 activ*).mp.	186154
26	(disease adj4 progress*).mp.	299374
27	(change adj2 disease).mp.	6021
28	improv*.mp.	3832613
29	relaps*.mp.	397042
30	refractor*.mp.	238437
31	((treatment* or therap* or intervention*) adj4 resistan*).mp.	136825
32	(inactive adj4 disease).mp.	5366
33	worsen*.mp.	180567
34	remission.mp.	324289
35	(recurr* or reoccur*).mp.	1144110
36	(stable or stabiliz*).mp.	1069614
37	or/12-36	10846996
38	11 and 37	8240
39	(exp animals/ or exp animal experimentation/ or nonhuman/) not ((exp animals/ or exp animal experimentation/ or nonhuman/) and exp human/)	7483297
40	38 not 39	7943

41	limit 40 to conference abstracts	2813
42	40 not 41	5130
43	(acr or "American College of Rheumatology" or eular or "European Alliance of Associations for Rheumatology").cf.	64460
44	40 and 43	798
45	42 or 44	5928

Database(s): Cochrane Central Register of Controlled Trials

Search Strategy:

#	Searches	Results
1	giant cell arteritis/	91
2	exp vasculitis/ and (large vessel* or giant cell or cranial or temporal or horton*).mp.	101
3	(large vessel* adj4 (vasculit* or arterit* or aortitid* or aortit* or arteritid*)).mp.	63
4	(giant cell adj4 (vasculit* or arterit* or aortitid* or aortit* or arteritid*)).mp.	311
5	(cranial adj4 (vasculit* or arterit* or aortitid* or aortit* or arteritid*)).mp.	6
6	(temporal adj4 (vasculit* or arterit* or aortitid* or aortit* or arteritid*)).mp.	53
7	(horton* adj4 (disease* or syndrome* or arterit*)).mp.	4
8	LVV.mp.	28
9	GCA.mp.	304
10	(polymyalgia adj4 arterit*).mp.	28
11	or/1-10	456
12	exp disease progression/	7417

13	disease exacerbation/	6874
14	recurrent disease/ or exp recurrence/	12078
15	remission/ or exp Remission Induction/	3912
16	deterioration/	2
17	disease duration/	2
18	disease activity/	0
19	relapse/	12078
20	(response or responding).mp.	251799
21	(flare? or flaring).mp.	4910
22	recover*.mp.	68882
23	(resolution* or resolv*).mp.	24571
24	disease state?.mp.	947
25	(disease adj4 activ*).mp.	20916
26	(disease adj4 progress*).mp.	32863
27	(change adj2 disease).mp.	1272
28	improv*.mp.	426116
29	relaps*.mp.	43452
30	refractor*.mp.	20194
31	((treatment* or therap* or intervention*) adj4 resist*).mp.	19222
32	(inactive adj4 disease).mp.	500

33	worsen*.mp.	17435
34	remission.mp.	35991
35	(recurr* or reoccur*).mp.	78519
36	(stable or stabiliz*).mp.	65408
37	or/12-36	784636
38	11 and 37	297

Supplementary Table S3: Components used to define active disease in observational studies, reported separately for each study.

	Clinical	Laboratory	Imaging	Assessed by investigator
Angelotti 2020				
Banerjee 2020				
Coll-Vinent 1999				
Conticini 2022				
Dashora 2022				
Gali 2022				
Graham 1981				
Grayson 2018				
Kermani 2016				
Kermani 2015				
Kyle 1989				
Quinn 2021				
Rimland 2020				
Schonau 2021				
Schwartz 2020				
Springer 2018				
Sugihara 2020				
Tuckwell 2017				
Vautier 2020				
Viera 2022				
Total	17/20 = 85%	8/20 = 40%	4/20 = 20%	6/20 = 30%

Supplementary table S4. Components used to define remission in observational studies, reported separately for each study

Author, year	Remission	Sustained remission	Clinical	Laboratory	Imaging	Assessed by investigator	Treatment	Time
Angelotti 2020				Norm i.m.			>3 m of GC	
Banerjee 2020						PGA		
Calderon-Goercke 2019 and 2021			Normalization	Norm PCR + ESR				
			"	"				>6 m
Coll-Vinent 1999			"	Norm ESR			discontinuation	>2 y
Conticini 2022			"	Norm ESR + CRP	No progression		Target GC dose	>6 m
Conway 2018			"					
Das 2021			"	Norm i.m.			<5 mg/d (strict remission)	
Dashora 2022			"		Not required			
Delaval 2019			"	Norm i.m.	Stable		<0.1 mg/Kg/d	
Galli 2020			"	Norm i.m.			discontinuation	>1 y
Galli 2022			"					
Grayson 2018			"					
Karabayas 2020			"				<7,5 mg/d	
Kermani 2016			"					
Kermani 2018			"					
Kuret 2022			Before relapse					
Kyle 1993, 1989 (2x)			Normalization					
Les 2015			"	Norm ESR + CRP				>1 w
Macchioni 2019			"	Norm ESR + CRP				>1 y
Matsumoto 2019			"	Normal CRP			<10 mg/d	
Muratore Aug 2020			"	Norm ESR + CRP	Stable		discontinuation	>1 y
Nannini 2019			Norm + VAS <10	Norm ESR + CRP				
Narvaez 1999							discontinuation	
Ponte 2021			No relapse				< 30 mg/d	
Prieto-Gonzalez 2017			Normalization	Norm ESR + CRP				
Prieto-Pena 2020			"	Norm ESR + CRP				
Quartuccio 2020			"	CRP or ESR improved				
Quinn 2021			"					
Regola 2020			"	Norm ESR +	No progression			>6 m

				CRP				
Restuccia 2016			"	Norm i.m.				1>y
Restuccia 2017			"	Norm i.m.			discontinuation	>1y
Rimland 2020						PGA		
Rossi 2021			"	Norm ESR + CRP	normalization			
Samson 2018			"	"				
Schmidt 2022			No flare	Norm CRP				
Schonau 2021			Normalization					
Schwartz 2020						PGA		
Sebastian 2020			"	Not required	At least stability			
Sugihara 2020			"	Norm CRP				
Tengesdal 2019							<5 mg/d	
Tuckwell 2017			"	Norm CRP				From remission up to w 52
vanSleen 2019	GC-free remission		"				Discontinuation	>6 m
Visvanathan 2011			"	ESR <40 mm/h			discontinuation	>12 w
Yamaguchi 2022			"	Norm CRP				
Total	37/44 (84.1%)	12 (27.3%)	39/44 (88.6%)	26/44 (59.1%)	6/44 (13.6%)	6/44 (13.6%)	15/44 (34.1%)	13/44 (29.5%)

Legend: CRP: C-reactive protein; d: day; ESR: erythrocyte sedimentation rate; GC: glucocorticoids; i.m.: inflammatory markers; m: month; Norm: normalization; w: week; y: year.

Supplementary Figure S1. PRISMA Flow chart.

