SUPPLEMENTARY APPENDIX

Predictive factors evaluated in the prediction model:

Baseline demographics and characteristics	***Week 12 responses***
Age (years)	ASDAS-MI (yes, no)
Sex (male/female)	ASDAS-ID (yes, no)
BMI (<18.5, 18.5≥BMI<25, 25≥BMI<30, ≥30)	ASAS40 (yes, no)
Symptom duration (<5 years, ≥5 years)	BASDAI50 (yes, no)
Time since diagnosis (<5 years, ≥5 years)	
CRP (≤ULN, >ULN)	
MRI (+,-)	
HLA-B27 (+,-)	
MRI/HLA-B27 combined (MRI+/HLA-B27+, MRI+/HLA-B27-, MRI-/HLA-B27+)	
Swollen Joint Count>0 (yes, no)	
MASES>0 (yes, no)	
Prior DMARDs (yes, no)	
Concomitant DMARDs at baseline (yes, no)	
Prior use of NSAIDs (≤2, >2)	
ASDAS	
BASDAI	
BASFI	
BASMI	
SI joint SPARCC Score	
Patient global assessment of disease activity	
Total spinal pain	
Nocturnal pain	
ASQoL	

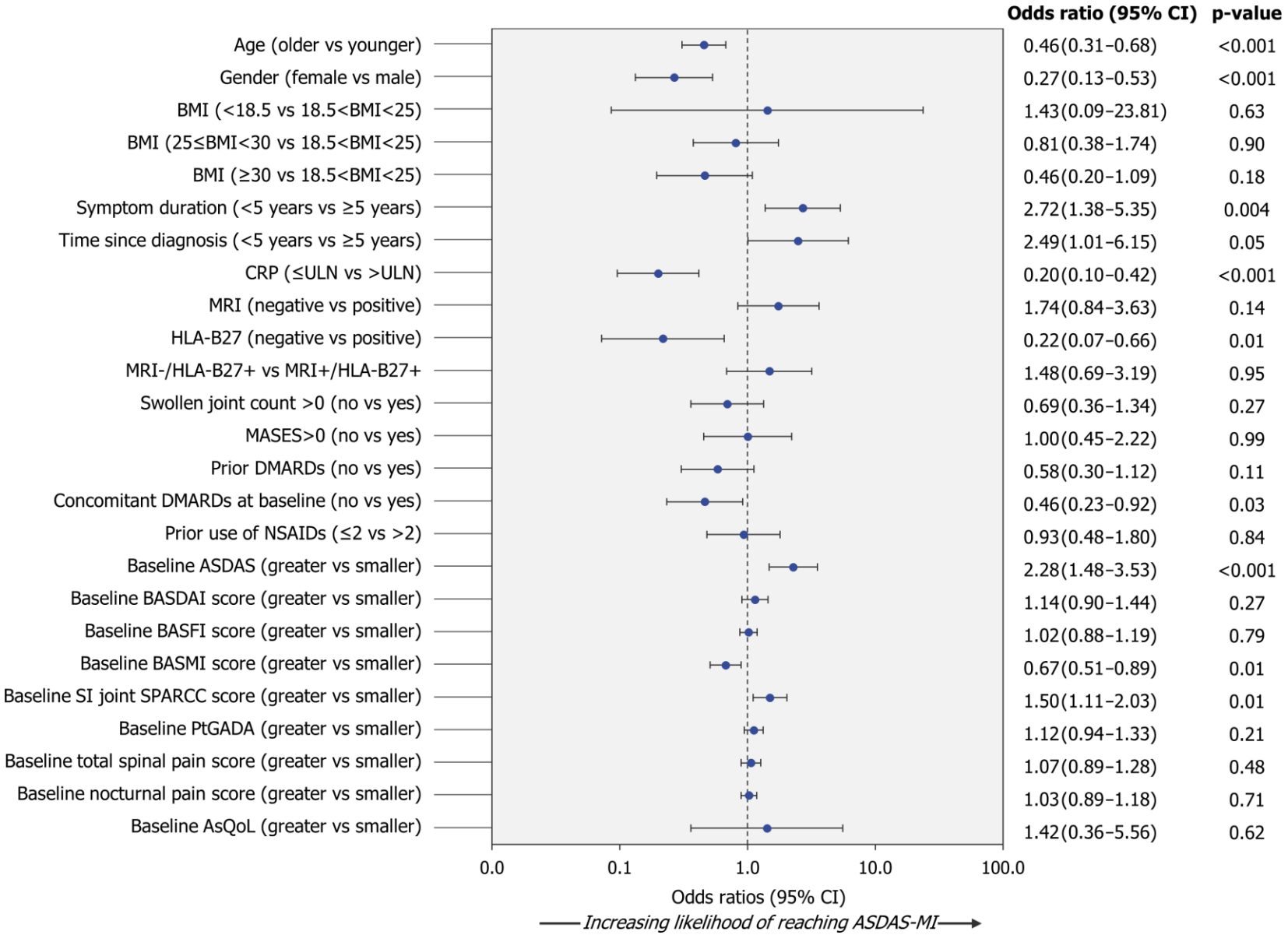
Permitted concomitant medications:

Non-biologic background medication permitted during C-axSpAnd included:

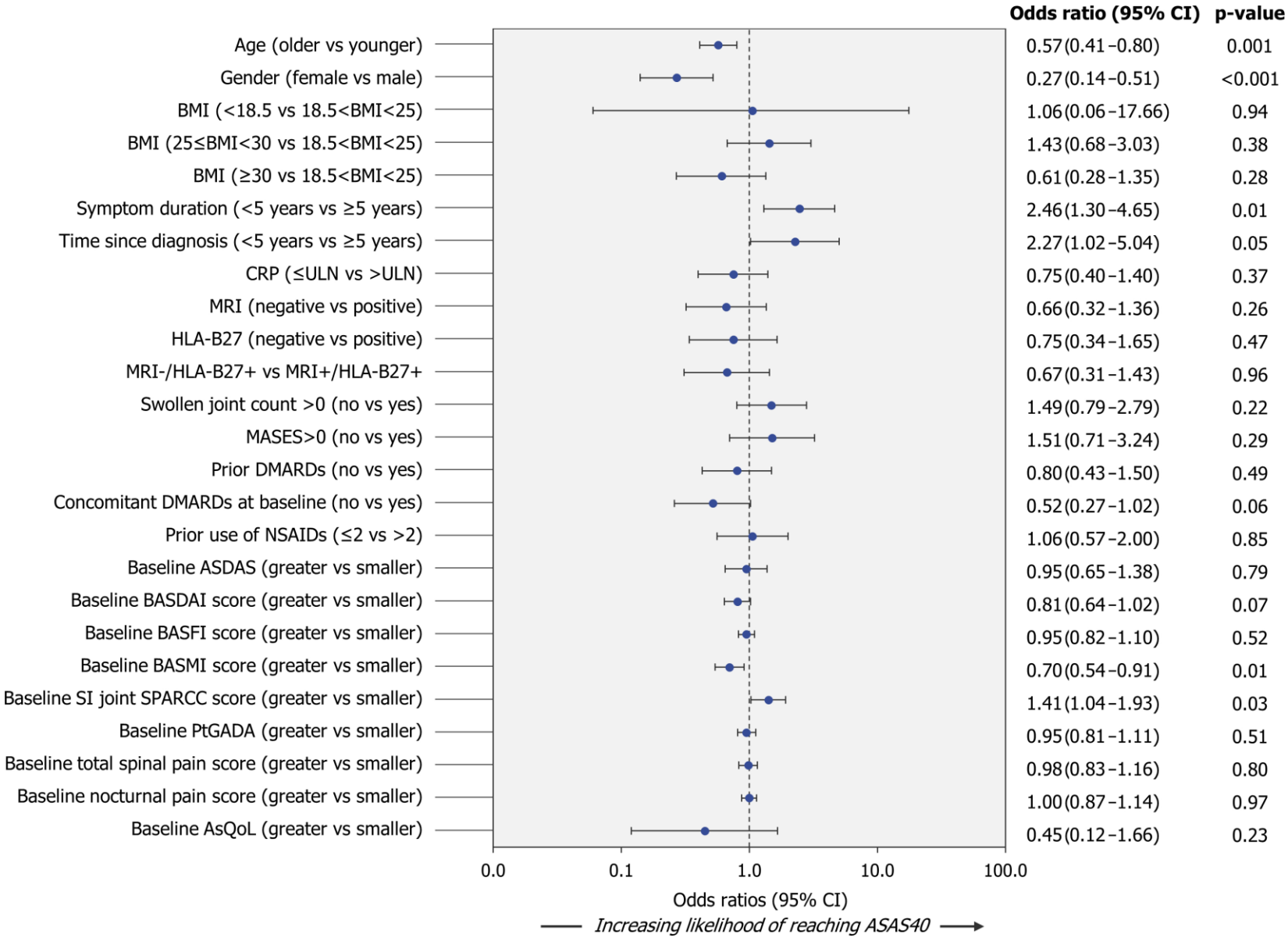
- Non-steroidal anti-inflammatory drugs (including COX-2 inhibitors)
- Opioid and non-opioid analgesics (including, but not limited to paracetamol and opiates)
- Conventional synthetic disease-modifying antirheumatic drugs (including sulfasalazine, hydrochloroquine, methotrexate, leflunomide and azathioprine)
- Disease-modifying antirheumatic drugs (including cyclosporine, cyclophosphamide, mycophenolic acid and apremilast)
- Hyaluronic acid
- Oral and intravenous corticosteroids

Figure S1. Univariate analyses of Week 12 predictors of response in CZP-treated patients (n=159)

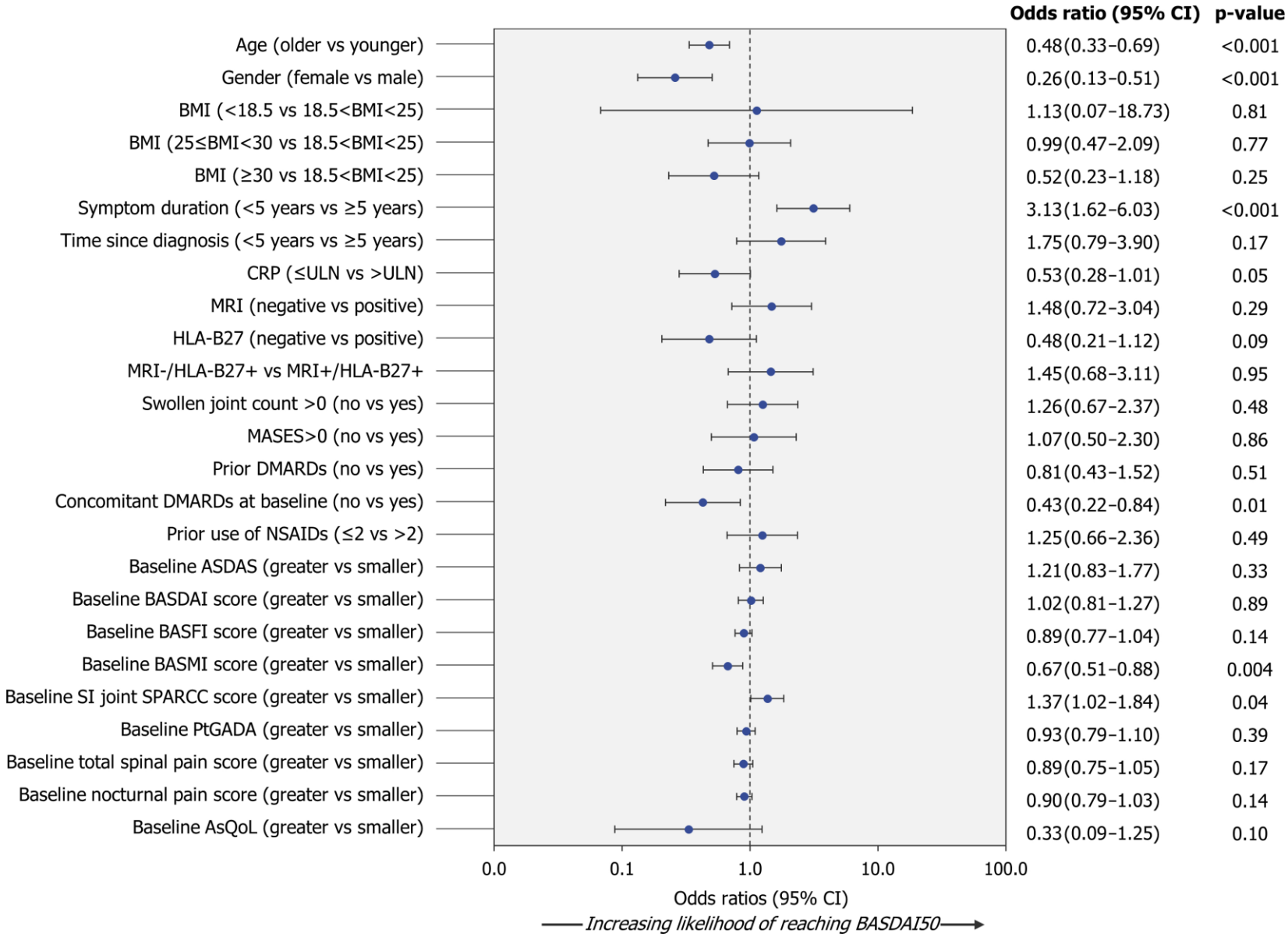
A) Predictive factors for ASDAS-MI



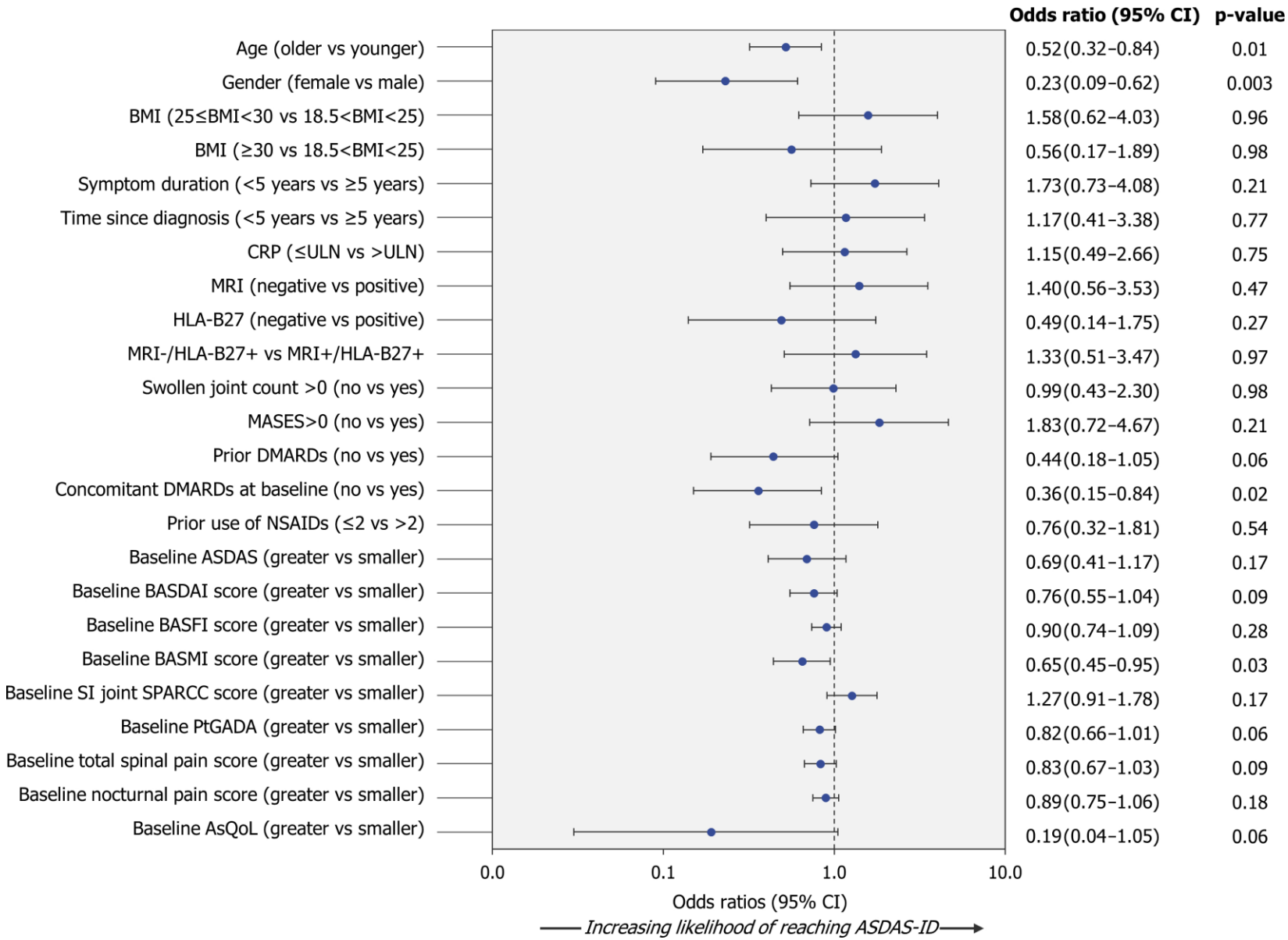
B) Predictive factors for ASAS40



C) Predictive factors for BASDAI50



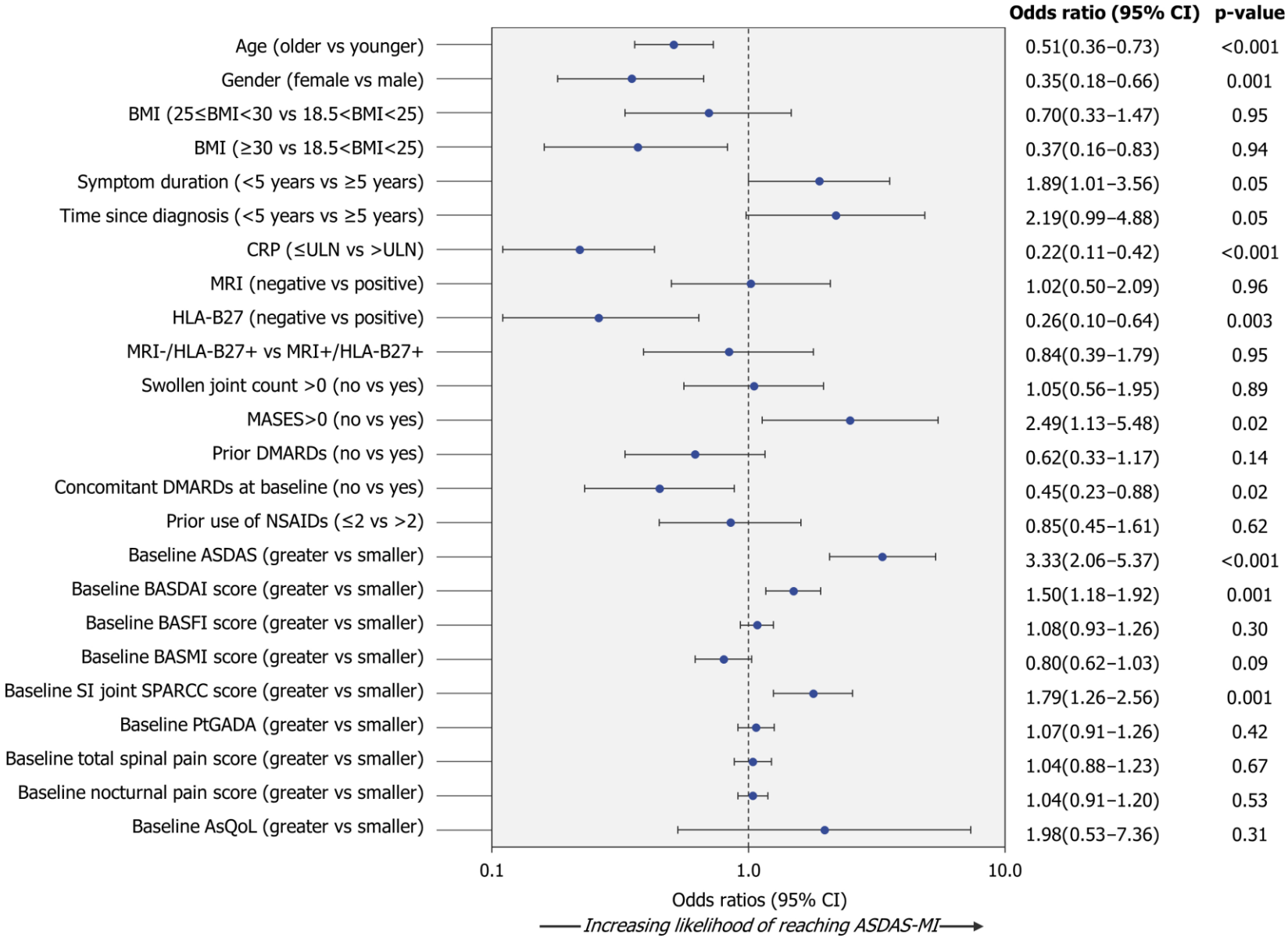
D) Predictive factors for ASDAS-ID



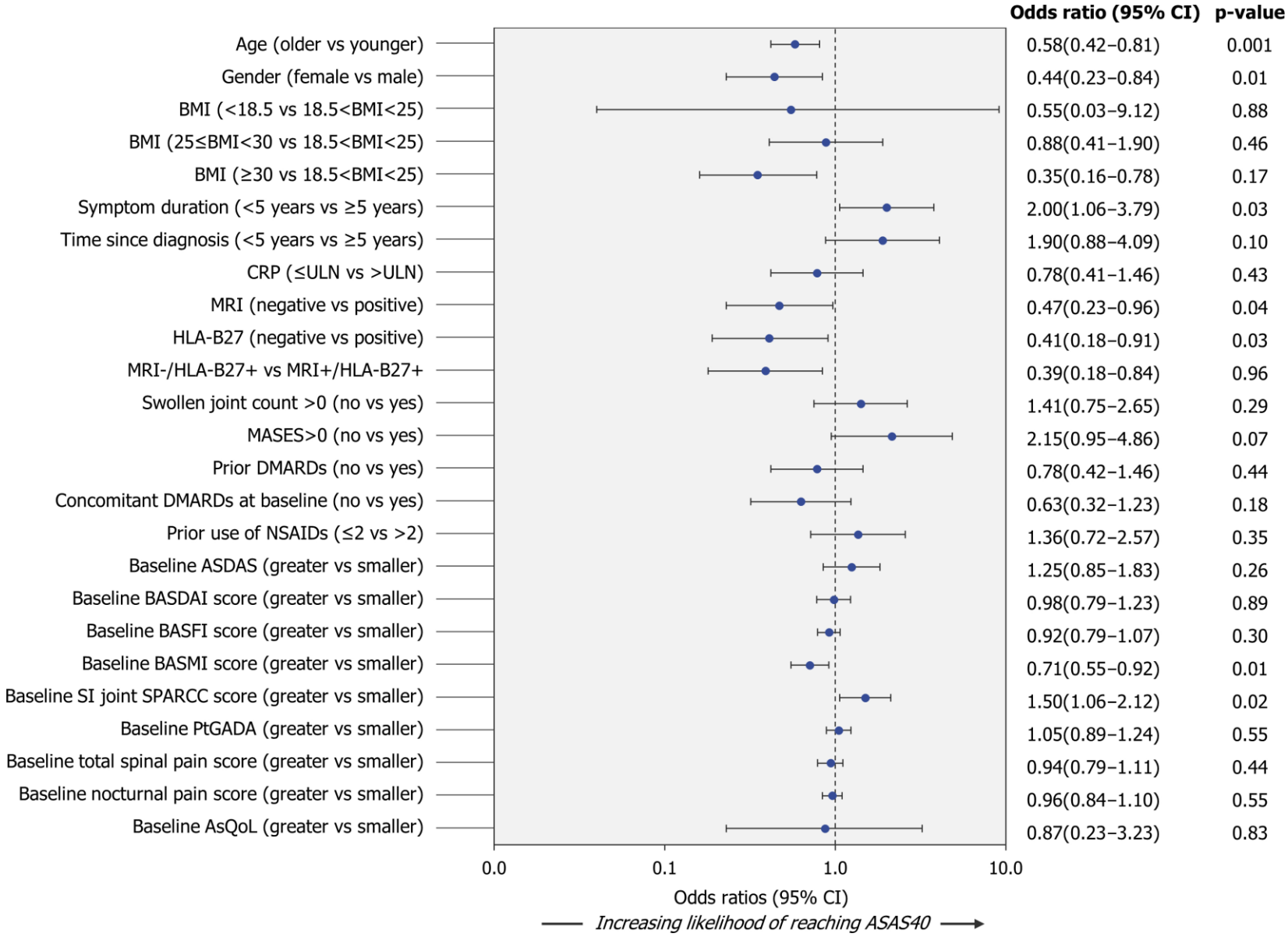
Full Analysis set (n=159). Patients received CZP 200 mg Q2W (400 mg loading dose at Weeks 0, 2 and 4) plus non-biologic background medication. Variables with 95% CI that were <0.0001 or >999.9 are excluded. 95% CI and p-values are considered non-confirmatory due to the exploratory nature of the analysis. ASAS40: Assessment of SpondyloArthritis International Society 40%; ASDAS: Ankylosing Spondylitis Disease Activity Score; ASDAS-ID: ASDAS inactive disease (ASDAS<1.3); ASDAS-MI: ASDAS major improvement (reduction in ASDAS≥2.0); ASQoL: ankylosing spondylitis quality of life; BASDAI50: Bath Ankylosing Spondylitis Disease Activity Index 50%; BASFI: Bath Ankylosing Spondylitis Functional Index; BASMI: Bath Ankylosing Spondylitis Metrology Index; BMI: body mass index; CI: confidence interval; CRP: C-reactive protein; CZP: certolizumab pegol; DMARD: disease-modifying antirheumatic drug; HLA-B27: human leukocyte antigen-B27; MRI+/-: presence/absence of sacroiliitis on magnetic resonance imaging; MASES: Maastricht Ankylosing Spondylitis Enthesitis Score (range 0−13); NRI: non-responder imputation; NSAID: non-steroidal anti-inflammatory drug; PtGADA: Patient Global Assessment of Disease Activity; Q2W: every 2 weeks; SPARCC: Spondyloarthritis Research Consortium of Canada; vs: versus.

Figure S2. Univariate analyses of Week 52 predictors of response in CZP-treated patients (n=159)

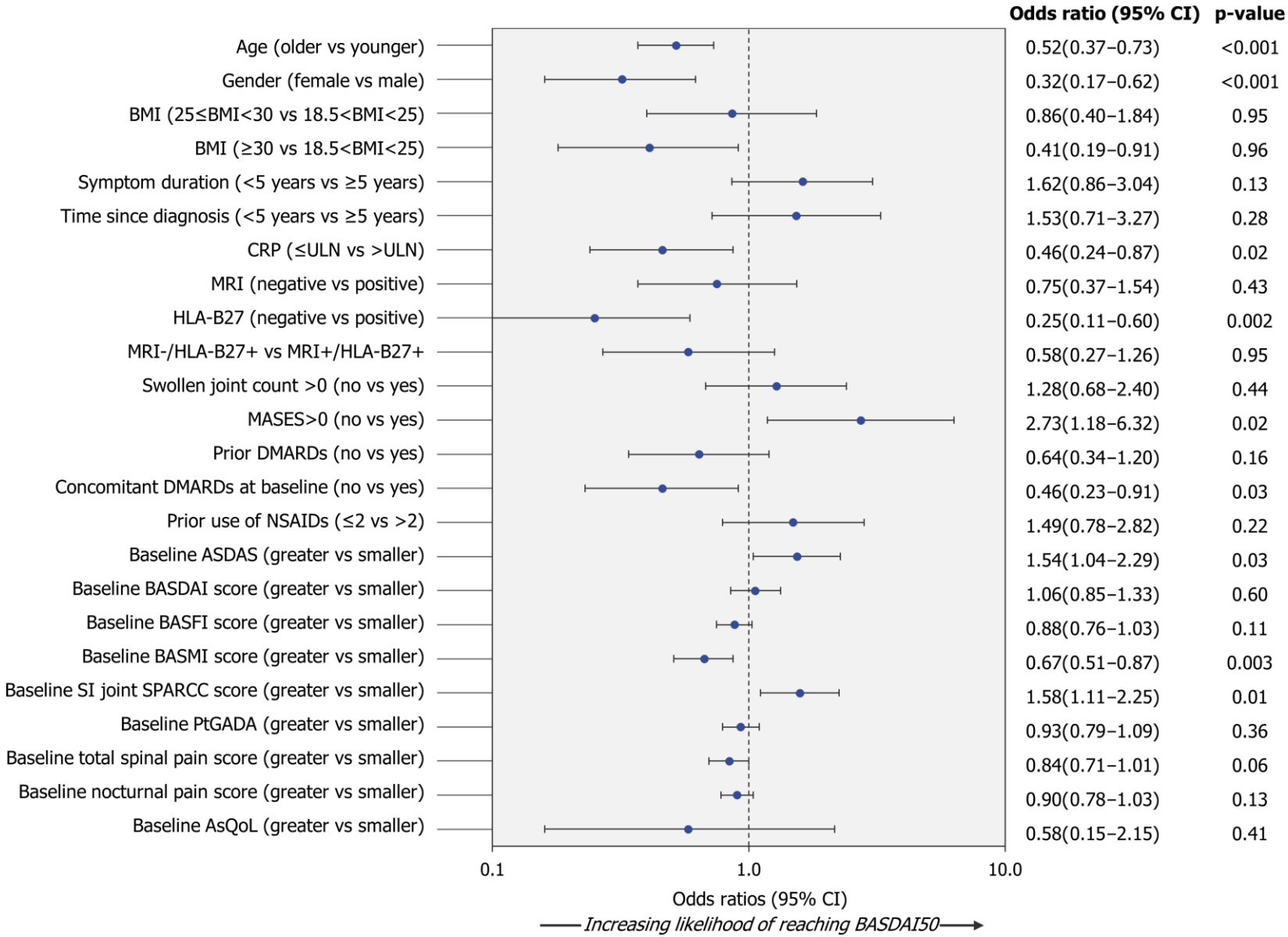
A) Predictive factors for ASDAS-MI



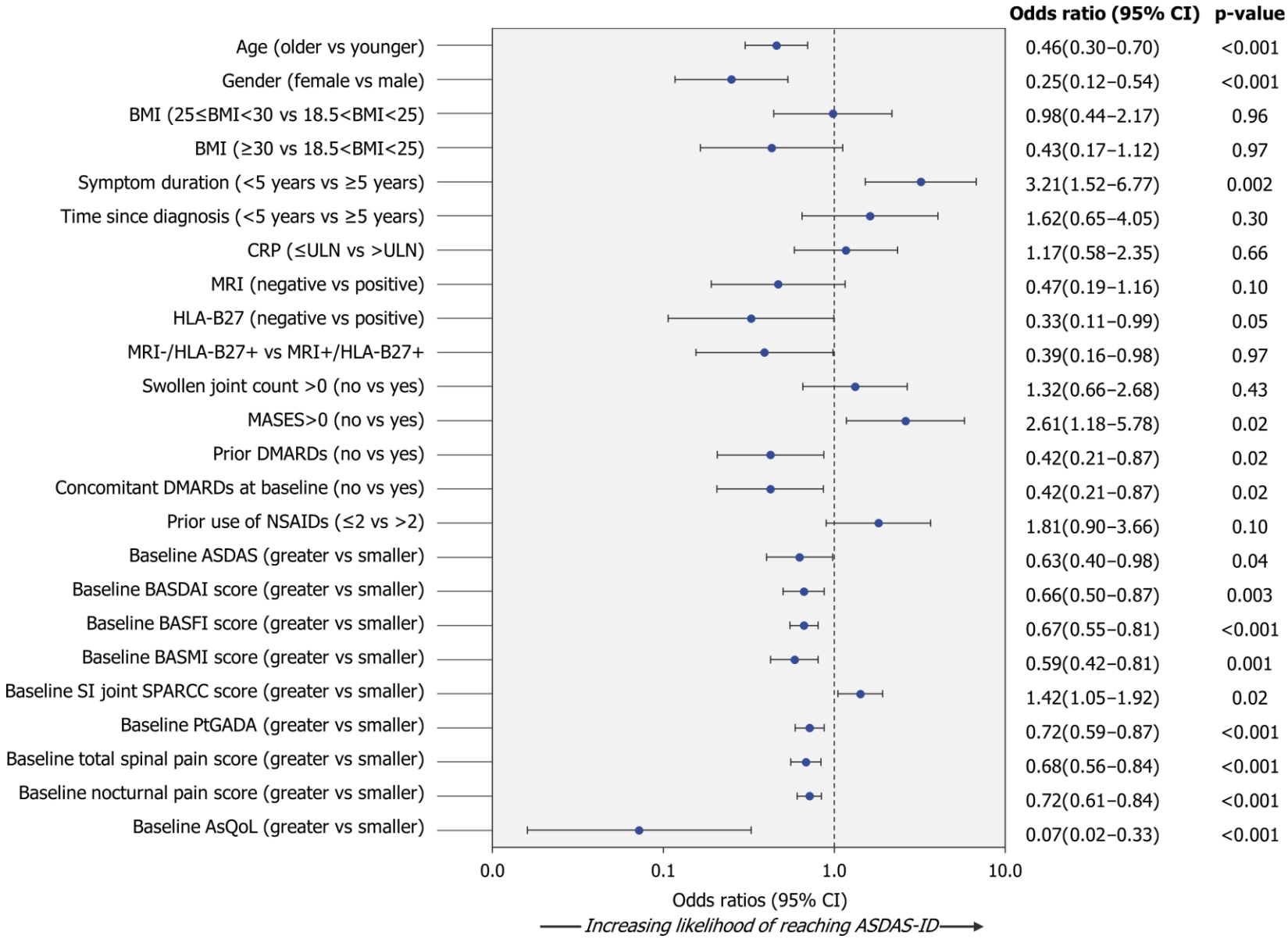
B) Predictive factors for ASAS40



C) Predictive factors for BASDAI50

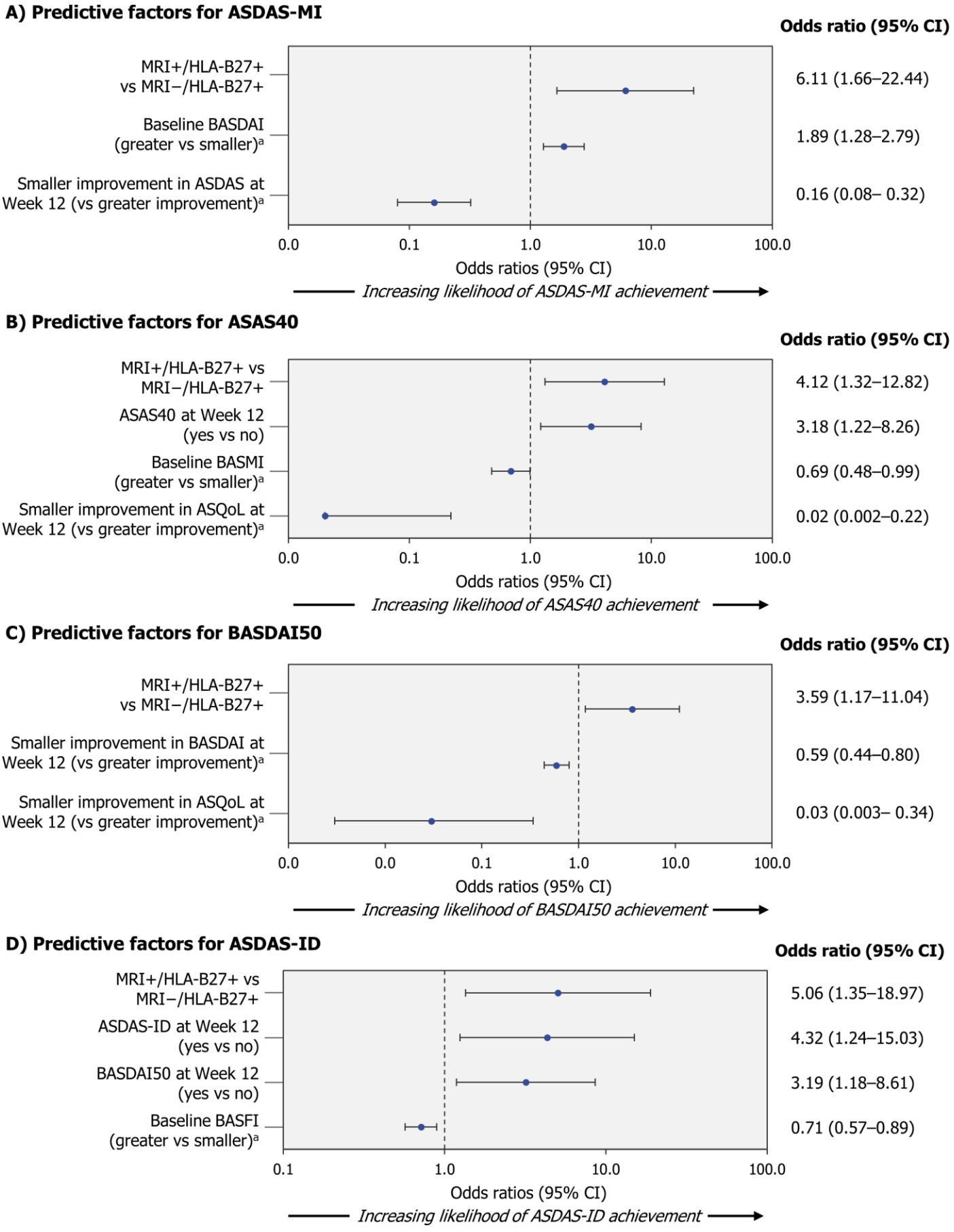


D) Predictive factors for ASDAS-ID



Full Analysis set (n=159). Patients received CZP 200 mg Q2W (400 mg loading dose at Weeks 0, 2 and 4) plus non-biologic background medication. Variables with 95% CI that were <0.0001 or >999.9 are excluded. 95% CI and p-values are considered non-confirmatory due to the exploratory nature of the analysis. ASAS40: Assessment of SpondyloArthritis International Society 40%; ASDAS: Ankylosing Spondylitis Disease Activity Score; ASDAS-ID: ASDAS inactive disease (ASDAS<1.3); ASDAS-MI: ASDAS major improvement (reduction in ASDAS≥2.0); ASQoL: ankylosing spondylitis quality of life; BASDAI50: Bath Ankylosing Spondylitis Disease Activity Index 50%; BASFI: Bath Ankylosing Spondylitis Functional Index; BASMI: Bath Ankylosing Spondylitis Metrology Index; BMI: body mass index; CI: confidence interval; CRP: C-reactive protein; CZP: certolizumab pegol; DMARD: disease-modifying antirheumatic drug; HLA-B27: human leukocyte antigen-B27; MRI+/-: presence/absence of sacroiliitis on magnetic resonance imaging; MASES: Maastricht Ankylosing Spondylitis Enthesitis Score (range 0−13); NRI: non-responder imputation; NSAID: non-steroidal anti-inflammatory drug; PtGADA: Patient Global Assessment of Disease Activity; Q2W: every 2 weeks; SPARCC: Spondyloarthritis Research Consortium of Canada; vs: versus.

Figure S3. Predictive factors of Week 52 response in CZP-treated patients who did not experience changes in background medication



Randomised Set (NRI). Patients received CZP 200 mg Q2W (400 mg loading dose at Weeks 0, 2 and 4) plus non-biologic background medication. Analysis excludes patients who experienced any change in background medication. [a]Included in the predictive model as continuous variables; for these factors, an odds ratio >1 indicates a higher probability of larger values being predictive of a response. For Week 12 change from baseline measures, a lower (negative) value is indicative of improvement, while larger (positive) values indicate worsening. ASAS40: Assessment of SpondyloArthritis International Society 40%; ASDAS: Ankylosing Spondylitis Disease Activity Score; ASDAS-ID: ASDAS inactive disease (ASDAS<1.3); ASDAS-MI: ASDAS major improvement (reduction in ASDAS≥2.0); ASQoL: ankylosing spondylitis quality of life; BASDAI50: Bath Ankylosing Spondylitis Disease Activity Index 50%; BASFI: Bath Ankylosing Spondylitis Functional Index; BASMI: Bath Ankylosing Spondylitis Metrology Index; CI: confidence interval; CZP: certolizumab pegol; HLA-B27: human leukocyte antigen-B27; MRI+/-: presence/absence of sacroiliitis on magnetic resonance imaging; NRI: non-responder imputation; Q2W: every 2 weeks; vs: versus.