<https://doi.org/10.47660/CBR.2020.17225>

THE IMPACT OF PERSISTENT INFLAMMATORY CHANGES ON PREVALENCE OF FAT LESIONS IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS TREATED WITH CERTOLIZUMAB PEGOL: 4-YEAR MRI RESULTS FROM RAPID-AXSPA

Xenofon Baraliakos¹, Sebastian Kruse¹, Simone E. Auteri², Natasha de Peyrecave², Tommi Nurminen³, Thomas Kumke³, Bengt Hoepken³, Marcelo Pinheiro^{4,*}, Jürgen Braun¹

1.Ruhr University Bochum, Herne, Germany. 2.UCB Pharma, Brussels, Belgium. 3.UCB Pharma, Monheim, Germany. 4.Universidade Federal de São Paulo, São Paulo (SP), Brazil.

*Corresponding author: mpinheiro@uol.com.br

BACKGROUND

Axial spondyloarthritis (axSpA) is a chronic disease characterised by inflammation in the sacroiliac joints and spine, causing severe back pain and stiffness. Fat lesions (FLs) on magnetic resonance imaging (MRI) T1 sequences are considered as post-inflammatory precursors to characteristic inflammation in axSpA patients¹. Certolizumab pegol (CZP), an Fc-free, PEGylated tumour necrosis factor inhibitor has been shown to decrease spinal and sacroiliac joint MRI inflammation and limit spinal radiographic progression over 4 years of treatment². RAPID-axSpA (NCT01087762) aimed to report the effect of early post-baseline (BL) inflammatory changes on FL prevalence over 4 years in CZP-treated axSpA patients.

MATERIALS AND METHODS

RAPID-axSpA was phase 3 trial, double-blind and placebo (PBO)-controlled to week 24, dose-blind to week 48 and open-label to week 204. Certolizumab pegol randomised patients (week 0 CZP: 200 mg every 2 weeks [Q2W] or 400 mg Q4W) continued their assigned dose throughout; PBO-randomised patients received CZP from week 24 or week 16 if nonresponders. Blinded spinal MRI scans were evaluated for FLs and inflammatory lesions in vertebral edges (VEs) at weeks 0/12/48/96/204. Changes in FL prevalence are reported as odds ratios (estimated from a logistic regression model [OR; FL+/FL-]) between time points/inflammation states, with nominal 95% confidence intervals (CI) for week 0 CZP.

RESULTS

89/325 CZP-randomised and 47/325 PBO-randomised patients were eligible (BL+ ≥ 1 post-BL MRI). 2,047 VEs were assessed at BL: inflammation was observed in 21.2% (mean count: 5.0/patient), FL in 29.8% of VEs (mean count: 6.8/patient) and both in 10.6% of VEs. At BL, FLs were more often observed in inflamed VEs vs noninflamed VEs (OR:3.06; 95% CI: 2.14–4.35). This difference increased over time (Fig. 1A). Resolution of inflammation by week 12 appeared to lower the risk of FL prevalence over 4 years (Fig. 1B).

CONCLUSION

This is the first report from a clinical interventional PBO-controlled study in a broad axSpA population, showing that inflammation that prevailed after CZP treatment initiation was associated with increased FL prevalence over 4 years. Reduction of inflammation by week 12 reduced the risk of FL long-term, indicating the importance of early inflammation treatment in axSpA patients.

ACKNOWLEDGEMENTS

This study was funded by UCB Pharma. Editorial services were provided by Costello Medical.

A: An OR > 1 represents an increase in FL from BL. A logistic regression with fixed effects for BL inflammation status by visit (including BL) and random effects for patient and VE (within patient). B: An OR > 1 represents increased FL in VEs with vs without inflammation at week 12, adjusted for BL VE status with respect to inflammation and FL. A logistic regression with fixed effects for week 12 inflammation by visit (excluding BL) and BL inflammation by BL FL and random effects for patient and VE (within patient), Laplace estimation. BL: baseline; FL: fat lesion; OR: odds ratio; VE: vertebral edge; 95% CI: 95% confidence interval.

Figure 1. (A) Odds ratio for changes in FL prevalence vs presence or absence of inflammation at BL; (B) OR of FL for VEs with vs without inflammation at week 12.

REFERENCES

1. Maksymowych WP, Morency N, Conner-Spady B, Lambert RG. Suppression of inflammation and effects on new bone formation in ankylosing spondylitis: evidence for a window of opportunity in disease modification. *Ann Rheum Dis*. 2013;72(1):23–8. <https://doi.org/10.1136/annrheumdis-2011-200859>
2. van der Heijde D, Baraliakos X, Hermann K-GA, Landewè RBM, Machado PM, Maksymowych WP, et al. Limited radiographic progression and sustained reductions in MRI inflammation in patients with axial spondyloarthritis: 4-year imaging outcomes from the RAPID-axSpA phase III randomised trial. *Ann Rheum Dis* 2018;77:699–705. <http://doi.org/10.1136/annrheumdis-2017-212377>