Objectives: To determine the effect of retinal outer nuclear layer thinning on the progression of hydroxychloroquine retinopathy.

Methods: We used a Heidelberg Spectralis(R) Spectral Domain Ocular Coherence Tomography (SD OCT) scanner to record the volume of the ONL in 194 eyes of 100 patients who have been on Hydroxychloroquine for 5 years or more. Volume data was analysed using the Statistical Package for Social Sciences (SPSS), we used logistic regression method to determine the probability of developing maculopathy based on the degree of reduction of the ONL volume. We correlated the loss of ONL to changes in visual fields.

Results: Mean age: 62.2 years, 20% males and 80% females. Diagnoses: 68% rheumatoid arthritis, 14% Sjogren’s syndrome, 16% Systemic Lupus and 2% others. Mean duration of use was 6.3 years. Logistic regression results show strong negative correlation between the ONL volume and probability of toxicity, a reduction of 0.5 mm3 of the ONL volume carries a 51% chance of developing maculopathy (P<0.001), the Hosmer-Lemeshow test indicates a high significance with a high P value of 0.61. Onset and progression of visual field defects strongly correlate to loss of ONL volume of 50% or more (P<0.0001) and age above 35 years (P<0.0001).

Conclusion: Outer nuclear layer volume reduction provides an accurate and objective way of predicting the development of hydroxychloroquine retinopathy, this method also helps building a cooperative relationship between ophthalmologists and rheumatologists to establish an effective screening service.

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include Larsen score for radiographs, RAMRIS for magnetic resonance imaging (MRI) and EULAR-OMERACT score for ultrasound (US). However, previous correlations between all three imaging modalities and their correlations with synovial histopathological assessment have not been performed.

**Objectives:** To investigate the relationship between histological synovitis and radiological synovitis, assessed by conventional X-ray, US and MR of the wrist radio-carpal joint.

**Methods:** Forty patients, 20 with treatment naive early RA (ERA) and 20 with longstanding RA (LRA), were enrolled in a 6 month prospective study. RA patients underwent US guided synovial biopsy (USGB) of the wrist at enrollment and after 6 months. Imaging was conducted on the same hand as biopsied. MRI was performed at baseline for all, and also at 6 month for the ERA group, and scored with the RAMRIS system. Wrist X-ray was scored by Larsen score at baseline and after 6 months. Hand US examination at baseline, 3 and 6 months was scored by the EULAR-OMERACT US system. Synovial biopsy inflammation at baseline and 6 months was determined by the Krenn score, scores for CD20, CD3, CD138, CD68 staining, and classification of synovial pathotypes.

**Results:** In the ERA group at baseline, Krenn score was strongly correlated with both EULAR-OMERACT US combined score (r = 0.77 p < 0.001) and RAMRIS MRI synovitis score (r = 0.85 p < 0.001), while uncorrelated at 6 months (r = 0.18, p = 0.38 and r = 0.14, p = 0.65). In the LRA group at baseline, these scores correlated strongly (r = 0.83, p < 0.001) to moderately (r = 0.61, p = 0.002), and persisted at 6 months for US score (r = 0.81 p < 0.001). Larsen score was not correlated with Krenn score at any point in any group. For all RA patients, change in Krenn score between baseline and 6-month biopsy, was correlated with both change in EULAR-OMERACT US combined score (r = 0.65, p < 0.001) and change RAMRIS MRI synovitis score (r = 0.50, p = 0.03), but not to change in Larsen score. Patients with the lymphoid pathotype had higher US combined score, MRI synovitis score and Krenn-score at baseline compared to other pathotypes (all p < 0.05).

**Conclusion:** The MRI RAMRIS synovitis score and EULAR-OMERACT US scoring system are sensitive measures of histological synovitis in LRA and ERA. Change in Krenn score between baseline and 6-month biopsy, was correlated with both change in EULAR-OMERACT US combined score (r = 0.65, p < 0.001) and change RAMRIS MRI synovitis score (r = 0.50, p < 0.03), but not to change in Larsen score. Patients with the lymphoid pathotype had higher US combined score, MRI synovitis score and Krenn-score at baseline compared to other pathotypes (all p < 0.05).

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**THE PROMETHEUS STUDY – INFLAMMATORY MYOPATHIES – A SUBANALYSIS OF THE PROMETHEUS STUDY**

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**Background:** Prometheus study was a prospective, randomized, assessor-blind multicenter trial, conducted to evaluate the efficacy and safety of the combination therapy with methotrexate and glucocorticoids (GC) compared to GC treatment only in patients with polymyositis (PM) and dermatomyositis (DM). Muscle MRI has been used to assess disease activity and response to treatment.

**Objectives:** To assess MRI findings we developed new semi-quantitative scoring method and used it for activity assessment and evaluation of treatment effect after 3 months of therapy.

**Methods:** In a novel semi-quantitative assessment of edema, we used scoring 0, 1, 2, and 3 according to intensity of signal in each of the 16 thigh muscles. Muscle damage was evaluated in 3 basic thigh muscle compartments and pelvic muscles using Goutallier grading (0–5) based on extent of fatty replacement. Both sides were assessed, an average was made for each muscle, and values were summed up in the total score. Images were scored by 2 independent evaluators and the mean was used. Manual muscle test (MMT) and creatininkinase (CK) were measured and patient’s global assessment (PGA), physician’s GA (PhGA) and muscle disease activity (MDA) were recorded on visual analogue scales.

**Results:** Seventeen patients had MR images taken before the baseline visit, 8 had also the second MRI after 3 months of therapy. There was a significant reduction of total MRI edema score (MRI ES) after 3 months in patients with PM and DM (from the mean 17.4 points, SD 13.7 to 8.0 points, SD 12.3; p = 0.025). No significant progression of fatty atrophy was observed (from 16.0 points, SD 8.8, to 19.4, SD 4.6; p = 0.3). At baseline, a significant correlation between MRI ES and PGA was noted (p = 0.027). There was also a borderline association of MRI ES with muscle strength evaluated by MMT (p = 0.05). In a subset of 8 patients with longitudinally performed two MRI evaluations we found a good correlation between...