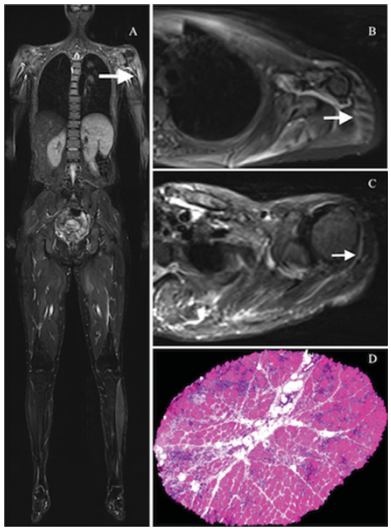
to the disease activity. The presence of oedema, fatty replacement and fascial oedema was evaluated in the biopsied muscle. Muscle and fascial inflammation was scored using a 0–3 point scale. The extent of muscle involvement was also evaluated by the analysis of 12 to 14 axial images and a percentage of muscle volume was calculated. Fatty replacement was scored using a 0–3 point scale. Muscle biopsies were evaluated by two trained pathologists at the HCB. Muscle biopsies were routinely processed. Quantification of fiber necrosis, regeneration and inflammation infiltrate were recorded. All statistical analyses were performed using "SPSS v22.0 ®". In all statistical tests performed p value of 0.05 was considered significant.

Results: A total of 16 (13 female) patients were included. Except in one patient all of them had proximal muscle weakness, and all of them except one had typical DM skin lesions. In 12% of the patients a solid cancer was diagnosed. All patients had fascial edema at muscle MRI while no one had fatty replacement, and 65% had muscle oedema. Only one biopsy was normal. A significant correlation was found between muscle inflammation and MRI muscle edema (p=0,036) and the percentage of volume muscle involvement at MRI (p=0,027). Muscle necrosis was seen in those patients with moderate and severe fascial edema compared with those with mild fascial edema (p=0,032). More regenerating cells were seen in those patients with moderate and severe muscle edema compared with negative or mild muscle oedema (p=0,018).



Conclusions: A strong and significant correlation between histological and imaging findings was found. Fascial and muscle edema were the predominant findings in DM patients

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SAT0646 COMPARISON OF US, CT, X-RAY AND MRI EFFICACY FOR SEQUENTIAL ASSESSMENT OF CHRONIC GOUT MANIFESTATIONS

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Background: Ultrasonography (US), magnetic resonance imaging (MRI), computed tomography (CT), and X-ray are the alternative diagnostic modalities used to identify affected joints and surrounding tissues (tophi, erosions and synovitis) in gout patients, but the potential of each method for sequential assessment of disease regression in pts receiving urate-lowering therapy is not sufficiently studied [1]

Objectives: Comparison of US, CT, X-ray and MRI efficacy for sequential assessment of affected joints in pts treated with urate-lowering agents.

Methods: The open prospective study was conducted in 2013–2015 yy at V.A. Nasonova Research Institute of Rheumatology. 22 pts with crystal-verified gout (4 (15%) f and 18 (85%) m), mean age – 54,5±12,7 years, were included. The dose of allopurinol administered in all pts was adjusted by titration starting from 100 mg/day. Instrumental diagnostic examination (US, MRI, CT and plain X-ray of knee joints) was performed at baseline and after one year of follow up. US of knee joints was performed using multi-frequency linear array transducer, at 7 to 17 MHz frequencies; for MRI examination "Esaote Artrosan 0.25TI" was used, GE "Light Speed" - for CT scans, and Stephanix – for plain X-ray examination. Applied descriptive statistics STATISTICA 10.0 (StatSoft/Inc., USA) package was used for statistical analysis.

Results: Mean serum level of uric acid decreased from 568±115 μmol/l to 302±135 μmol/l. The target level (<360 μmol/l) was achieved in 20 pts (91%), (<300 μmol/l) was achieved in 11 pts (50%). Median allopurinol dose was 400 [300; 600] mg/day, 9 (45%) pts had to take 600 mg/day and more. At baseline US examination detected periarticular tophi in 13 (59%) pts, MRI - in 6 (28%) pts, CT in 3 (14%), X-ray - 1 (5%) pts, after one year - by US in 9 (41%) pts and MRI - 3 (14%) pts, CT in 2 (9%), X-ray - 1 (5%) pts. At baseline intraosseous tophi were detected only by CT and X-ray in 18 (81%) and 2 (9%) pts respectively, after one year 17 (77%) pts and 3 (14%) pts respectively. At baseline erosions were detected in 19 (86%) pts by MRI, in 11 (50%) pts – by US, in 14 (65%) pts – by CT, and in 9 pts (41%) – by X-ray, after one year in 14 (64%) pts by MRI, 10 (45%) pts by US, 12 (54%) pts by CT, 8 (36%) pts by X-ray. At baseline synovitis was reliably diagnosed by MRI and US: in 15 (68%) pts and 17 (77%) pts, after one year in 2 (9%) pts and 3 (14%) pts respectively

Conclusions: MRI and US, as for synovitis, erosions and tophi dynamics, are comparable, at that for erosions MRI is more accurate. CT is the most informative approach to monitor intraosseous tohhi regression. X-ray is low- informative modality for sequential assessment of gout.

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SAT0647 LASER DOPPLER IMAGING: AN OBJECTIVE OUTCOME MEASURE FOR ASSESSMENT OF CUTANEOUS LUPUS ERYTHEMATOSUS

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Background: Cutaneous lupus erythematosus (CLE) is the most common manifestation of SLE and may occur without systemic features. Skin disease is particularly heterogeneous, rendering assessment of activity difficult. Laser Doppler imaging (LDI) is a non-invasive imaging tool that monitors blood perfusion in dermal tissue. It has been shown to correlate with inflammation in psoriasis but no study has been undertaken in CLE.

Objectives: To evaluate validity of LDI against the gold standard of histology from skin biopsy as well as other clinical tools including the Revised Cutaneous Lupus Erythematosus Disease Area and Severity Index (RCLASI) and Visual Analogue Scale (VAS) scoring of photographs.

Methods: A prospective observational study was conducted in consecutive patients with CLE flare at a single centre. Disease activity was assessed using RCLASI and measured using a high resolution LDI system (Moor Instruments) by JB and YY, both blinded to clinical assessment. Relative difference to the non-lesion area was calculated and expressed in perfusion unit (PU). Skin biopsy was obtained in those who consented and scored as 0=non-active, 1=mild activity and 2=active. Photographs were taken on the same day and were later assessed by a dermatologist and a rheumatologist who were blinded to LDI results using a 100mm VAS. The agreement of VAS between both clinicians was analysed using Bland-Altman limits of agreement (LOA) and the correlation between histology and LDI, RCLASI and VAS were analysed using Kendall's Tau-a.

Results: 20 patients were studied (19 female, median age 47.2 (range 21–62) years, 6 smokers, 2 CLE only, 14 (70%) ANA positive at the time of the scan). The distribution of CLE type were: acute CLE=7, subacute CLE=6 and chronic CLE=7. The agreement between the VAS scores of the two clinicians was fair; mean difference 7.8 (95% CI LOA -26 to 42) mm versus average. In 10 patients with skin biopsy, the correlation with histology was better for LDI (tau-a=0.56) than RCLASI [-0.09; difference (90% CI) 0.64 (0.10, 1.19)] or VAS [-0.16; 0.71 (0.13, 1.29)] (figure 1). One patient who was deemed to have a subacute CLE flare based on clinical assessment indeed had a negative histology and a low PU.

Conclusions: In this preliminary analysis, assessment of blood perfusion to dermal tissue using LDI provides a valid quantitative and objective measure of inflammation in cutaneous lupus. The findings from LDI also had a better correlation with histology from skin biopsy compared to currently used clinical tools. Further validation and longitudinal analysis including assessment of responsiveness to therapy will provide further evidence on the usefulness of LDI in clinical practice and trials.

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