**SUPPLEMENT**

**METHODS**

**Patients and study design**

Patient data for this study were acquired from the multicenter SWEFOT database of early RA patients 18. Inclusion criteria for the SWEFOT study required patients to have had a symptom duration of less than one year and to be disease-modifying anti-rheumatic drug (DMARD) naïve. After three months of methotrexate (MTX) therapy, patients were categorized as responders with a disease activity score of 28 joints (DAS28 <3.2) or non-responders (DAS28 >3.2). Responders continued with methotrexate as monotherapy while non-responders were randomized into either double therapy (MTX and infliximab) or triple therapy (MTX, sulfasalazine, and hydroxychloroquine). The detailed study design, inclusion criteria and main outcomes have been previously reported 18. The SWEFOT study and sub-studies were approved by regional ethics committees of all participating units and was registered at http://www.clinicaltrials.gov (NCT00764725). Each patient received verbal and written information regarding the trial and was allowed time and opportunity to ask for clarification 18. Of the 487 SWEFOT patients, 119 met the inclusion criteria for this study, defined as having 1) available clinical and demographic data at baseline and one year follow-up, 2) available radiographs of the hand at baseline and/or one year follow-up using the same image plate resolution, and 3) radiographic progression reports according to the modified Sharp van der Heijde (SHS) scoring method. Out of the 119 patients, 96 had both usable baseline and follow-up radiographs. A flowchart illustrating the inclusion criteria is shown in Figure 1.

**Assessment**

Clinical and laboratory results were also acquired from the SWEFOT database for each patient at baseline and at one-year follow-up, including: Anti-Citrullinated Peptide Antibodies (ACPA), Rheumatoid Factor (RF), C-Reactive Protein (CRP), Erythrocyte Sedimentation Rate (ESR) and Health Assessment Questionnaire (HAQ). Blinded to the treatment plans, the radiographic damage and progression were evaluated by two certified SHS readers in chronological order, according to the guidelines of the SHS scoring method 4. The joint space narrowing of 42 joints was carried out by visual inspection of radiographs with a semi-quantitative scale of 0-4, and reports for erosions were made from 44 joints with a semi-quantitative scale of 0-5 in the hands and 0-10 in the feet. The inter-class correlation coefficient was 0.94 and the smallest detectable difference in SHS was 5.8 units for the readers.

**Fully automated joint space width measurements**

Computer assisted automated measurements of the MCP joint spaces were calculated from the digital hand X-rays of each patient using dedicated software (DXR-online, Sectra, Linköping, Sweden). This software was a further development of a semi-automated version used previously 11, 19-21. Maintaining correct radiographic techniques, to eliminate positional error, the metacarpal locations were determined in the initialization part of the DXR method which recognizes the metacarpal joints. Once in place, the program recognizes the texture models of the metacarpals 2, 3 and 4 in order to determine the joint locations and automatically places the JSW measurement boxes over the region of interest. The joint edge tracing and measurement algorithms in this automated version were optimized from previous versions to take advantage of the knowledge of the type of joint being measured, with MCP joint widths measured radially over an angular width of 3π/8 of the metacarpal head surface. The mean average and standard deviation of the distance over an extended interval of 0.8 cm is then calculated. The measurement regions are illustrated in Figure 2. The short-term in vivo reproducibility of JSW, expressed as the coefficient of variation (CV%), was 1.4% and the smallest detectable difference (SDD) was 0.062 mm for MCP 2, 3 and 4 of 30 healthy volunteers.