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AB1108

ANALYSIS OF HOMOGENOUS PATTERN IN ANTI-NUCLEAR ANTIBODY-INDIRECT IMMUNOFLUORESCENCE ASSAY

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Background: Autoantibodies that produce the homogenous pattern on anti-nuclear antibody-indirect immunofluorescence (ANA-IIF) assay using human epithelial cell (HEp-2) substrate are histones, dsDNA and nucleosome. Homogenous pattern may be seen in patients with many different systemic autoimmune diseases as well as organ-specific autoimmune diseases. Homogenous pattern is difficult to distinguish from dense fine speckled (DFS) pattern and other staining pattern may be masked by homogenous pattern.

Objectives: The purpose of this study was to analyze the profile of autoantibodies in patients with homogenous pattern on IIF-ANA assay and to find out the clinical significance of homogenous pattern.

Methods: A total of 103 sera samples with homogenous pattern on IIF-ANA assay were obtained. The IIF-ANA assay was performed using the PhD system (Bio-Rad Laboratories, Hercules, CA, USA) with Kallestad HEp-2 slides (Bio-Rad Laboratories). ELISA CTD Screen and ELISA dsDNA (Thermo Fisher Scientific, Freiburg, Germany) were performed using the Phadia 100 system (Thermo Fisher Scientific). ELISA CTD Screen has following specific antigens: U1RNP (RNP70, A, C), SS-A/Ro (60kDa, 52kDa), SS-B/La, Centromere B, Scl-70, Jo-1, fibrillarin, RNA Pol III, ribosomal P-protein, PM-Scl, PCNA, Mi-2, Sm, and native purified DNA. Specific autoantibody tests against histone and nucleosome assay were performed using Euroimmun microplate ELISA (Euroimmun AG, Luebeck, Germany). Western blot (WB) assay was performed to confirm the presence of anti-DFS70 using HeLa whole-cell lysates as previously described. Clinical information regarding the presence of autoimmune diseases and other clinical conditions of individual patients was obtained from a retrospective review of clinical records.

Results: Of the 103 patients with homogenous pattern on IIF-ANA assay, 21 were diagnosed as systemic autoimmune rheumatic disease (SARD) or organ-specific autoimmune diseases (autoimmune group), whereas 82 were not patients with autoimmune diseases (non-autoimmune group). Among 103 patients, 51 patients (49.5%) were negative on all autoantibody tests performed in this study: CTD screening assay and specific autoantibody tests against anti-DFS70, dsDNA, histone, and nucleosome. The detection rates of autoantibodies were 10.7% for dsDNA, 15.5% for histone, and 19.4% for nucleosome. Total of 32 patients (31%) were positive in at least one of dsDNA, histone, and nucleosome autoantibodies. The detection rate of CTD screening assay was 31.1% (32/103). Of 32 CTD screening positive patients, 18 (56%) were positive and the remaining 14 (44%) were negative on dsDNA, histone or nucleosome. Anti-DFS70 antibody was detected in 6 patients (5.8%) and they have no other autoantibodies. At least one of dsDNA, histone, and nucleosome autoantibodies were positive in 42.9% (9/21) of autoimmune group and 28% (23/82) of non-autoimmune group. Positive result on CTD screening was found in 38.1% (8/21) of autoimmune group and 23.2% (19/82) of non-autoimmune group.

Conclusion: It is generally accepted that homogenous pattern is caused by antibodies against dsDNA, histone and nucleosome and have a clinical relevance with SLE, chronic autoimmune hepatitis, and juvenile idiopathic arthritis. However, the results of this study found that the majority (79.6%) of patients with homogenous pattern had no autoimmune diseases and only 31% had autoantibodies to dsDNA, histone or nucleosome. Especially 49.5% of patients were all negative for autoantibodies included in CTD screening assay as well as autoantibodies responsible for homogenous pattern such as autoantibodies against dsDNA, histone, and nucleosome. This suggests that homogenous pattern may be originated by autoantibodies that cannot be identified by conventional test methods.

Disclosure of Interests: None declared

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AB1109

THE TIME-TO-EVENT ANALYSIS OF THE APPLICATION OF ULTRASOUND TO DISTINGUISHING PMR

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Background: Japan is the world's most aged country. The number of patients with polymyalgia rheumatic (PMR) is expected to increase more.

Classification criteria including ultrasound findings were published in 2012(1), but the ability to differentiate PMR from other mimicking diseases was unknown.

It is difficult to diagnose PMR accurately. We will clarify whether recently reported ultrasound findings (2, 3) which could be characteristic in PMR are helpful for distinguishing from other mimicking diseases and treatment outcome in suspected PMR patients. Neither diagnostic laboratory test nor specific antibody exist, and inflammatory markers such as C reactive protein and erythrocyte sedimentation rate are not specific.

Objectives: Patients who were clinically suspected of PMR and underwent ultrasound examination from 2008 to 2018. And Patients who visited the hospital with PMR and were diagnosed with PMR from 2008 to 2018.

Methods: Patients who visited the hospital and were diagnosed with PMR were extracted from the medical record database of the hospital. Patients who had been administrated GC at the first visit and whose records were not confirmed were excluded. Patients who were clinically diagnosed with PMR without ultrasound (Clt-PMR), patients who were diagnosed with PMR with ultrasound reports (US-Clt-PMR), patients who were diagnosed by the ultrasound expert only based on ultrasound images (US-PMR).

Patient were followed up for one year. Clinical diagnoses were confirmed at the 6 months and 12 months since the first GC administration.

Three groups were compared with each other in the rate of diagnosis change and the time intervals between the initiation of GC treatment and the occurrence of events: recurrence, methotrexate introduction and the normalization of C reactive protein.

the Kaplan-Meier method was used to evaluate the outcomes. Statistical analyses were conducted with R software, version 3.5.2 (R Foundation for Statistical Computing) and EZR(4).

Results: 545 PMR patients were extracted. 403 of 545 was excluded because of preexisting GC therapy and record availability.

At the 6 months follow-up, 92.8% of the non-US PMR group and 97% of US-PMR group remain PMR and at the 12 months follow-up 88.8% and 95% respectively. There was no significant difference in the three time-to-event outcomes.

Conclusion: Ultrasound did not contribute the improvement of the PMR outcomes. However, this finding was affected by confounding factors for example assignment to ultrasound and atypical cases and rheumatologists' uncertainty. Despite confounding factors, US-PMR group was not inferior. These findings showed that ultrasound may be useful for the complicated cases.

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AB1110

QUANTUM BLUE® RAPID TDM ASSAY STANDARDIZATION HIGHLY CORRELATES WITH WHO INTERNATIONAL STANDARD FOR INFLIXIMAB

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Background: Therapeutic drug monitoring of RA patients under anti-TNF therapy is based on trough level determination of the drug. Rapid assays and multiple ELISAs are available that measure anti-TNF biologics. An international standard is required to improve comparability among different assays. Recently, WHO introduced a series of anti-TNF standards for etanercept, adalimumab and infliximab. This is the first step for achieving common standardisation of assays available on the market.

Objectives: The aim of the study was to evaluate the correlation of the WHO standard with BÜHLMANN Quantum Blue® Infliximab standardization and to compare spiking recovery in three commercially available infliximab ELISAs and one infliximab rapid test.

Methods: Calibration curves were generated with BÜHLMANN calibrators and with calibrators made from WHO international standard for infliximab (NIBSC 16/170). Twenty-six serum samples, covering a concentration range from 0.5 µg/mL to 19 µg/mL, were analyzed with both calibration curves and compared by Bland-Altman and Passing-Bablok analysis. Furthermore, recovery of six serum samples spiked with WHO international standard for infliximab was determined in Theradiag LISA TRACKER Infliximab (a), Grifols/Progenika Promonitor-IFX (b), Immundiagnostik IDKmonitor Infliximab drug level (c) and BÜHLMANN Quantum Blue® Infliximab (d). Spiking recovery experiments were performed according to Westgard 2008.

Results: The sample values gained with BÜHLMANN calibrators showed an excellent correlation with values gained with the WHO international standard for infliximab as calibrator. Passing-Bablok regression analysis revealed a slope of 0.96 and correlation coefficient (R) of 0.99. Bland-Altman analysis revealed a mean difference in the obtained values of less than five percent. Regarding spiking recovery analysis, all tests exhibit an excellent mean recovery of 101% (85-114%; a), 99% (91-105%; b); 101% (95-107%; c) and 94% (88-100%; d).

Conclusion: Current standardization of Quantum Blue® Infliximab rapid test correlates very well with the WHO international standard for infliximab (NIBSC 16/170). Spiking recovery was highly comparable for ELISAs and the Quantum Blue® Infliximab assay. This rapid test represents a unique and modern analytical method, for fast time-to-result and simplicity of usage in a more patient near medical environment.

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AB1111

PREDICTIVE VALUE OF FLUORESCENCE-OPTICAL IMAGING TECHNIQUE IN DETECTION OF PSORIATIC ARTHRITIS IN PSORIASIS PATIENTS

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Background: Psoriasis (Pso) is one of the most common chronic inflammatory skin diseases in Europe. Psoriatic arthritis (PsA) is closely associated to Pso whereas the skin manifestation appears usually years before PsA-related symptoms emerge. Up to 30% of Pso patients develop PsA, but there is no clear correlation between disease duration of Pso and PsA development. Therefore, biomarkers for its early detection are of major importance. In early PsA, changes in synovial vascularisation combined with increased expression of proangiogenic factors appear first. Therefore, imaging biomarkers for detection of changes in vascularisation might be useful for early detection of musculoskeletal disease. Fluorescence-optical imaging (FOI) is a new method to detect changes in microvascularisation of the hands.

Objectives: To determine the number of positive PsA diagnosis within a 24 month follow-up period in Pso only patients with subclinical MSK-inflammation detected in FOI.

Methods: Sensitivity of FOI for detection of subclinical signs of musculoskeletal inflammation as biomarker for early PsA was observed in a prospective, multicentre study (XCITING) including patients with dermatological confirmed skin psoriasis. 411 patients were included from dermatology care units across Germany without diagnosis of PsA but potential risk factors for its development (nail psoriasis and/or joint pain or swelling within the last 6 months). Clinical examination (CE; swollen (66) and tender (68) joint count, enthesitis, dactylitis assessment) and standardised ultrasound (US) assessment was performed by a qualified rheumatologist to assess musculoskeletal inflammation. FOI was performed additionally. Data was analysed in focus on increased vascularisation of musculoskeletal structures as inflammatory markers. In case of discrepant results (positive FOI and negative CE and US), MRI was performed to prove the findings. In case of MRI negativity, a follow-up period of 24-months was performed including FOI, CE, US and MRI assessment.

Results: 83 of the 411 patients of the cohort were negative in all assessments (Pso only), 136 of the 411 patients were classified as PsA by rheumatologic assessments. 119 patients showed subclinical signs of musculoskeletal inflammation in the central reading of FOI, whereas CE and US were negative. In 37,5% of those patients, subclinical inflammation was confirmed by MRI assessment. 22 patients of the cohort without MRI positivity were willing to be followed up until month 24. 5 (7,5%) patients developed a clinical PsA until month 24 whereas 7 (10,5%) patients converted to be FOI negative. In 5 patients an additional MRI examination was performed in which one patient showed positive signs for inflammation.

Conclusion: FOI is an innovative method for measurement of changes in microvascularisation in the hands. 6/22 patients initial only positive in FOI (no clinical signs for PsA, negative US, negative MRI) developed either clinical evident PsA (n=5) or new inflammation in MRI (n=1) during follow-up of 24 months. Therefore, FOI positive signals in Pso patients increase the probability for PsA development.

Figure 1. Flow Chart of the Follow-up period of the XCITING study.

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AB1112

THE DIAGNOSTIC OF THE OSTEOARTHRITIS OF THE HANDS BY CONVENTIONAL RADIOGRAPHY

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Background: The most severe phenotype of osteoarthritis (OA) is currently considered to be an inflammatory or erosive phenotype (EOA). There is currently no reliable x-ray picture of this disease in the literature, and the question of whether it is an independent form of OA, a natural more pronounced stage of progression, or a separate nosology is debated in the literature.

Objectives: To identify the localization, frequency, and severity of pain and radiological symptoms in patients with EOA and non-erosive (NOA) disease in the interphalangeal (DIP and PIP) and metacarpal (MCP) joints of the hands.

Methods: 64 women with diagnosis of OA of the hand (HOA) joints according to the ACR criteria were included into study after signing the informed consent form. Mean age was 65.28 ± 6.82 years (48-77), mean BMI 27.7 ± 4.4 kg/m², mean disease duration 12 ± 8.1 years. Individual patient's medical record included relevant anthropometric data, records from case history and clinical examination, AUCAN scores, patient's articular status. Instrumental diagnostic methods included plain radiography of the hand joints in an anterior-posterior projection. The images were described in accordance with the Kellgren&Lawrence (K&L) system.

When evaluating radiographs of 64 patients with HOA, the most common was stage II (49%) according to K&L, and the most common symptoms in distal (DIP), proximal (PIP) interphalangeal and MCP were joint space narrowing (JSN) (100%, 100%, and 95%, respectively) and osteophytes (OP) (88%, 70%, and 45%, respectively). Subchondral osteosclerosis (SO) (5%), erosions (8%), and subluxations (3%) in MCP, as well as subluxation in PIP (6%) were less common. Statistica 10.0 was used for statistical analysis.

23 patients had EOA, 37 had NOA. Depending on the presence of erosions in interphalangeal joints patients were divided into 2 groups comparable in terms of age, age of OA onset and duration of disease (the average age of patients with EOA interphalangeal joints was 68 ± 6.15 years, and mean disease duration 18,34 ± 7.11 years; in the group without erosive changes in the average age amounted to 65,13 ± 5.43 years, mean disease duration of 16.56 ± 8.4 years).

Results: EOA DIP and PIP was detected in 15 (23%) with radiological changes corresponding to stages III-IV of HOA and in 8 people (12%) with stage II on