AB1026 AN ANA SCREENING ASSAY (ELIA® CTD SCREEN) CONTAINING MULTIPLE ANTIGENS INCREASES THE SENSITIVITY AND SPECIFICITY OF ANA TESTING BY INDIRECT IMMUNOFLUORESCENCE

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Background: Antinuclear antibodies (ANA) are the serological hallmark of connective tissue diseases (CTD) and indirect immunofluorescence (IIF) on Hep-2 cells is still considered the gold standard for ANA screening. While this method is sensitive it lacks specificity. Moreover, low-titer ANA subspecificities may escape detection by IIF.
Objectives: To investigate the usefulness of an ANA screening assay containing most of the diagnostically relevant antigens for CTD diagnostics.
Methods: Sera from 265 consecutive patients presenting with symptoms characteristic of connective tissue diseases (but without a clear diagnosis yet) were analysed by IIF and the EliA® CTD Screen (Thermo Fisher Scientific) containing the following antigens: dsDNA, U1-snRNP, Sm, Ro60, Ro52, La, Rib-P, topoisomerase I (Scl-70), centromere B, RNA polymerase III, fibrillarin, Jo-1, Mi-2, Pm/Scl. All positive sera were further analyzed by monospecific assays (Thermo Fisher Scientific).
Results: Among the 265 patients, 90 were positive by IIF and 78 by CTD Screen; 61 sera were positive in both systems, 17 only in the CTD Screen and 29 only in IIF. In all double positive patients at least one diagnostically relevant antibody was detected, with anti-Ro and anti-dsDNA antibodies being most frequently detected. Importantly, antibodies were also detected in 15 of the 17 patients who were exclusively positive in the CTD Screen: 7 patients had anti-dsDNA, 4 anti-Ro, 1 anti-La, 2 anti-U1snRNP, and 1 patient had anti-Jo-1 antibodies. In contrast, among the 29 sera exclusively positive by IIF only two contained a diagnostically relevant antibody. Clinical evaluation revealed that 16 out of the 17 CTD Screen pos/IIF negative patients presented with at least 1 clinical sign commonly associated with systemic rheumatic disease (sicca syndrome, 12 patients; arthritis/arthralgias, 13 patients; microangiopathy, 2 patients; myositis, 2 patients; leukocytopenia, 2 patients; Raynaud's phenomenon, 5 patients; pericarditis, 1 patient; thromboembolic events, 2 patients). These patients may be at higher risk for developing a CTD, or, alternatively, may be at an early stage of a CTD in which a definite diagnosis is not yet to be made. The combination of distinct autoantibodies with clinical signs of systemic rheumatic disease, however, warrants a careful follow up in these patients.
Conclusions: ANA screening assays containing multiple antigens such as the EliA® CTD Screen seem to be helpful diagnostic tools that should be used in addition to IIF for detection of disease-associated autoantibodies enabling the physician to substantially improve diagnostics of connective tissue diseases.
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AB1027 THE UTILITY OF LIP BIOPSY IN PATIENTS DIAGNOSED OF IPAF (INTERSTITIAL PNEUMONIA WITH AUTOIMMUNE FEATURES)

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Background: The European Respiratory Society/American Thoracic Society Task Force has defined a classification criteria for interstitial pneumonia with features of autoimmunity that does not accord to a specific systemic disease. This criteria combines clinical, serological and radiological domains. The clinical criteria does not include dry syndrome eventhough the serological criteria does include antiRo and antiLa antibodies. It is known that some patients with dry syndrome with antibodies negativity undertake lip biopsy to confirm Sjögren Syndrome (SS). Therefore lip biopsy could be useful to IPAF if SS is suspected.
Objectives: Determine the utility of lip biopsy in patients with interstitial pneumonia that present symptoms suggestive of an autoimmune disease.
Methods: Retrospective study of patients attended between june of 2010 and june of 2016 in a tertiary referral hospital was done. We included 23 Pneumology patients diagnosed of IPAF that were referred to Rheumatology clinic to rule out underlying connective disease. All patients had a complete immunologic study, two pulmonary function test including diffusion capacity of CO and a lip biopsy to confirm SS. The results of the lip biopsy was analysed with different variables.
Epidemiologic data, blood test, pulmonary function test and pattern of ILD by high definition CT or lung biopsy were analysed. Changes in therapeutic decisions and pulmonary function test a year after the lip biopsy were also registered. To compare qualitative variables we used Chi Square test or Fisher exact test when necessary. The statistical significance was set up to p-value inferior to 0.05.
Results: 16 of 23 patients with ILD met classification criteria of IPAF (69.6%). 12 were women (52.2%) with a median age of 77 (from 54 to 87 years). The findings of our group is summarised in table 1.
9 lip biopsies confirmed SS (39.1%) and 7 changed treatment according to result (30.4%). No variables such as sex, smoking, previous lung disease, dry syndrome or Schirmer test showed relation with lip biopsy result. Previous treatment with corticosteroids did not seem to influence the results of lip biopsy eventhough it was not statistically significant (p-value 0.059). No relation with antinuclear antibody or acute phase reactants was observed either. Lip biopsy was most useful to diagnose SS for those with Usual Interstitial Pattern ($p<0.02$) among other patterns of ILD.

Variable	Number (percentage %)
Sex	Women 12 (52.2), Men 11 (47.8%)
Exposition to toxic	3 (13%)
Dry syndrome	19 (82.6%)
Altered Schirmer test	11 (55%)
Antinuclear antibody (>1/160)	12 (52.2%)
Anti La/Ro52/Ro60	0 (0)
Rheumatoid Factor	6 (26.1%)
Previous corticosteroid therapy	7 (30.4%)
Diagnostic lip biopsy	9 (39.1%)
IPAF criteria	16 (69.6%)
ILD pattern	UIP 4 (17.4%), NSIP 13 (56.5%), LIP 1 (4.3%)

Conclusions: Lip biopsy is a complementary examination to consider for IPAF. In our group the results were significant for UIP. Corticosteroid therapy did not seem influential to the results of lip biopsy eventhough it was not statistically significant. In 39.1% SS was diagnosed and in 30.4% treatment was changed according to results.
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AB1028 PREVALENCE AND DISTRIBUTION OF SESAMOID BONES IN THE HAND DETERMINED USING DIGITAL TOMOSYNTHESIS

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Background: Sesamoid bones are round or oval-shaped bones that are embedded in tendons. The prevalence and distribution of sesamoids in the hand varies between different populations. Conventional radiography (CR) is generally used to identify the sesamoid bones. However, there was no study using digital tomosynthesis (DTS).
Objectives: The aim of this study was to identify the prevalence and distribution of sesamoid bones in the hand using DTS in comparison to previous studies.
Methods: Using CR and DTS, hand images (81 left and 100 right) taken at a tertiary hospital were retrospectively reviewed. The sesamoid bones were identified in the distal interphalangeal (DIP), interphalangeal (IP), and metacarpophalangeal (MCP) of the thumb (I), index (II), long (III), ring (IV), and small (V) fingers. Differences in number of sesamoid bones detected on CR and DTS were analyzed.
Results: Sesamoid bones were observed in MCP I (100%), MCP II (46%), MCP III (2%), MCP IV (2%), MCP V (53%), and IP (53%) on CR. Using DTS, sesamoid bones were found more often in MCP I (100%), MCP II (54%), MCP III (2%), MCP IV (1%), MCP V (59%), and IP (75%). Differences in the mean number of sesamoid bones detected on CR and DTS were statistically significant. Sesamoid bones in DIP joints were frequently observed on DTS, but rarely found on CR.
Conclusions: Most sesamoid bones in the hand were detected in MCP I, II, V, and IP joints, and were more often detected on DTS than CR. DTS is a reliable tool to evaluate bony structures in the hand.
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AB1029 ULTRASOUND NAIL ASSESSMENT IN PSORIATIC ARTHRITIS AND PSORIASIS COMPARED WITH HEALTHY CONTROLS

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Background: Assessment of nail involvement is currently made by clinical assessment using nail psoriasis severity index (NAPSI). Whilst clinical assessment can detect superficial nail changes, the matrix and the extensor tendon region are not accessible for clinical assessment.
Musculoskeletal (MS) ultrasound (US) is playing an important role in the evaluation of psoriatic arthritis (PsA) patients. Recently, MSUS has been more used in the evaluation of nail involvement in psoriasis (Pso) and PsA patients.
Objectives: The primary objective of this observational, cross-sectional study was to assess the MSUS morphological and vascular abnormalities in nail in PsA and Pso patients compared with healthy controls. The secondary objective was to compare MSUS and clinical assessment of the nail in PsA and Pso patients.
Methods: We included patients with PsA (diagnosed according to CASPAR criteria) and patients with Pso without joint involvement (diagnosed by an experienced dermatologist according to clinical findings) and healthy controls.

Clinical evaluation consisted in the evaluation of the NAPSI and PASI scores. The MSUS evaluation consisted in the evaluation of 10 hand nails. In B-mode (BM) we evaluated the followings: thickness of the nail bed from the distal phalanx bone surface to the ventral plate (PB) according to Worstman X et al.; thickness of the nail from dorsal to ventral plate (IP); dorsal and ventral plate morphology, echogenicity and integrity. Additionally, we performed a color Doppler (CD) evaluation for the presence of CD signal at the nail bed and matrix level. A score for BM and different scores for CD were calculated for each nail and sums of all nails for BM and CD scores were calculated for each patient.

Results: We evaluated 60 patients with PsA, 23 with Pso and 20 controls. 52.4% were female. The mean age (SD; range) was 50.2 (13.6; 23–83). The age was higher in patients (Pso and PsA) than in controls ($p<0.001$). Patients with PsA were more treated with DMARD (81.7%) while patients with Pso were more treated with topics (73.9%) than DMARDs (13%), ($p<0.001$). The majority of the patients (96%) had a PASI score less than 12. The NAPSI was higher in Pso patients than in PsA patients ($p<0.001$); for all controls the NAPSI was 0.

US measurements of IP and PB were significantly higher in patients than in controls in the majority of the nail ($p<0.045$). Total US score for BM was significantly higher in patients than in controls ($p<0.001$). There were no significant differences for the majority of CD scores between patients and controls.

Overall we found weak to moderate positive correlations between NAPSI and US scores for BM, both for matrix and bed. For most of the nails we found no correlation between NAPSI and CDUS scores; for the rest of the nails the correlation was weak, both positive and negative.

References:

[1] The MSUS measurements and scores showed to be higher in patients with PsA and Pso compared with controls, while CD scores showed no differences.

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AB1030 IDENTIFICATION OF VERTEBRAL FRACTURES IN FRACTURE LIASION SERVICES ACROSS THE UNITED KINGDOM

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Background: Fracture Liaison Services (FLS) can prevent secondary fracture through systematic identification of low trauma fractures using dedicated case finding, with assessment and treatment of osteoporosis where necessary. Services are now being measured for quality against *Clinical Standards for Fracture Liaison Services* published by the National Osteoporosis Society in 2015.[1] The first standard asserts that all patients over 50 years with a newly reported vertebral fracture will be systematically and proactively identified.

Objectives: To evaluate provision for systematic identification of newly reported vertebral fractures in patients aged over 50 at Fracture Liaison Services (FLS) across the UK.

Methods: A gap analysis tool was used to measure service provision against standard one of the *Clinical Standards for Fracture Liaison Services*, relating to the systematic and proactive identification of vertebral fractures. Data was collected at 78 sites in the UK.

Results: 63% (49) of sites had *no* systematic process in place to identify vertebral fractures. Only 10% (8) sites identified *all* newly reported vertebral fractures. 27% (21) had procedures in place to identify *some* vertebral fractures, i.e. those within certain cohorts. There was considerable disparity across the UK. Sites in Scotland were significantly more likely to have comprehensive processes in place (38%, 6/16) than in the rest of the UK (3%, 2/62).

Conclusions: Systematic identification of vertebral fractures poses a particular challenge to services due to a number of factors. Vertebral fractures are difficult to identify as they tend not to present or be admitted in acute settings where FLS are primarily based. In addition, services require support from Radiology, including a commitment to avoid ambiguous terminology when reporting vertebral fractures. Furthermore, as a category, vertebral fractures fall between departments (Rheumatology, Orthopaedic, Fracture Clinic, A&E, Spinal services) making systematic identification even more challenging. In the Fracture Liaison Service Database Facilities Audit (May 2016), the most frequently cited barrier to the identification of vertebral fractures was lack of a patient pathway.[2] Gap analysis shows a paucity of provision in the identification of vertebral fractures. This is the key driver for work underway in the NOS to develop a patient pathway for vertebral fractures, in conjunction with clinical experts, to promote best practice and best patient care.

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AB1031 ANTI-DRUG ANTIBODIES: ASSAY PERFORMANCE IN PATIENTS TREATED WITH ANTI-TNF BIODRUGS

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Background: Minimum biodrug concentrations of ~7mg/l are predictive of disease remission[1]. Very low/absent biodrug concentrations associate with loss of benefit which may be due to ADA[2] however the clinical utility of ADA is assay dependant. In rheumatoid arthritis the combination of low/absent drug concentration and the presence of ADA appears to have the greatest utility[3]. Canterbury Health Laboratories, New Zealand (CHL) has developed a competitive binding ELISA to detect neutralising antibodies whereas most commercial assays utilise a bridging methodology

Objectives: Compare performance of a competitive binding assay with two commercial bridging assays in the detection of ADA to anti-TNFα biodrugs in serum samples with low/absent biodrug concentration

Methods: Serum samples referred for anti TNF biodrug concentrations found to have very low/undetectable concentrations (<1mg/l) were tested for ADA using the competitive-bind assay and two bridging assays (TANI Medikal and GRIFOLS)

Results: Over a 22 month period (Jan 2014 – Oct 2016), 67% (331/497) of referred samples had biodrug concentrations below 7mg/l and 15% (n=79) had low/undetectable biodrug concentrations (adalimumab n=36 or infliximab n=43). ADAs were detected in 53% (42/79) of this latter group. The competitive binding assay detected ADAs in all samples testing positive for ADA by binding assay. In addition a further 8 samples were positive for ADA by the competitive assay: 53% (42/79) positive for ADA by the competitive assay and 33% positive by one or other of the commercial assays

Conclusions: The competitive binding ELISA was more sensitive in detecting biodrug ADAs in serum samples with very low/undetectable biodrug concentrations

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AB1032 COMPARISON OF DIFFERENT TECHNIQUES FOR DETECTING ANTI-DFS70 ANTIBODIES

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Background: Antinuclear antibodies (ANA) positivity with a dense fine speckled (DFS) pattern by indirect immunofluorescence (IIF), as per the definition of the International Consensus on ANA Patterns (ICAP), is not uncommon and is linked to the presence of anti-DFS70 antibodies. These antibodies, in the absence of others, are very valuable as biomarkers of exclusion of a systemic autoimmune disease (SAD).

Objectives: To evaluate anti-DFS70 antibody detection by two different laboratory techniques and its relation with different IIF patterns, including DFS pattern.

Methods: During three months, the serum of patients with positive ANA was consecutively collected. Three groups of patients were established according to their IIF pattern: a first group (D) with a DFS pattern as per ICAP; a second group (M) with other speckled with positive mitosis patterns; and a third group (C), as a control, with well defined homgeneous and speckled patterns.

In order to perform a preliminary analysis, 10 serum samples were randomly selected from each group. In each serum sample, an ANA screening by IIF on Hep-2000 cells (Fluorescent IgG ANA-Ro Test System – Immunoconcepts) using an AP-16 Elite/Zenit-Up/GSight system from Menarini, and an anti-DFS70 antibodies detection by two different laboratory techniques (IIF on Hep-2 cells [Hep-2/DFS70 Knock-out - Immco Diagnostics] and inmunoblot [ANA+DFS70 Dot Blot – Alphadia]) were performed. Simultaneously, antibodies against extractable nuclear antigens (ENA), nucleosomes (NUS) and histones (HIS) were tested.

Results: In group D, positivity for anti-DFS70 antibodies was confirmed in 7/10 cases, all of them being negative for other ANA. In group M, 2/10 serum samples were positive for anti-DFS70 and 2/10 were positive for anti- NUS antibodies, none of them being positive for anti-ENA. In group C, no sample was positive for anti-DFS70 antibodies, while all of them showed positivity for antibodies against ENA, NUS and HIS.

The detection of anti-DFS70 was found to be equal by the two methods in 8 of the 9 positive cases, being both negative in the others. In no case the presence of anti-DFS70 was associated with a diagnosis of SAD.

Conclusions: Both IIF and immunoblot are suitable methods for detecting anti-DFS70 antibodies. We propose to determine anti-DFS70 and to perform an ENA screening in case of finding a DFS pattern of ANA by IIF, and to investigate anti-DFS70 in other speckled patterns with positive mitosis if no other specificities have been previously found.