SP0140 **PATIENT ENGAGEMENT IN RESEARCH: A PCORI EXEMPLAR**

J. Poole. *Occupational Therapy Program, University of New Mexico, Albuquerque, United States*

This session will discuss patient and stakeholder involvement as members of the research team on a grant funded by the Patient Centered Outcomes Research Institute (PCORI). Patients with a rare chronic disease, systemic sclerosis, and members from key stakeholder organizations were involved in evaluating, revising and testing the effectiveness of an internet self-management program. They participated at several levels of engagement including planning the study, conducting the study, and disseminating the results. This session will discuss how engagement occurred at each of these levels through different opportunities such as creating interventions, identifying outcomes, recruiting, presenting findings, and planning dissemination efforts. The benefits and challenges for both researchers and patient research partners will also be described.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.7294

FRIDAY, 16 JUNE 2017

RA treatment in patients wanting to become pregnant - interactive session

SP0141 **NEW RA, BUT WHAT ABOUT A NEW BABY?**

A. Willemze. *Rheumatology, LUMC, Leiden, Netherlands*

Rheumatoid arthritis (RA) is a chronic inflammatory autoimmune disease affecting women often in their childbearing years. In this case presentation a 35 year old female patient is illustrated with a recently diagnosed rheumatoid arthritis with active disease and a wish to conceive in the nearby future. Management of disease activity in patients who wish to conceive or during pregnancy might be a challenge due to limited treatment options. How should we treat this patient taking into account her wish to conceive in the nearby future? Should the patient postpone her wish to conceive because of active disease?
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.7182

SP0142 **FOREPLAY AND FINALE: FACTORS AFFECTING FERTILITY, BIRTH AND LACTATION IN RHEUMATOID ARTHRITIS PATIENTS. CLINICAL CASE**

P. Nero. *Rheumatology, Hospital CUF Descobertas, Lisboa, Portugal*

We present the clinical case of a 38 year old woman diagnosed with rheumatoid arthritis at the age of 32. She went into remission of her disease during treatment with subcutaneous methotrexate (25 mg/week) for 2 years. She decided to become pregnant and stoped treatment. RA relapses 4 months later and she has no response to classic DMARD's (sulphassalazine and hydroxychloroquine) and starts etanercept (50mg/week). She gets pregnant and achieves remission at week 16 of her pregnancy. At week 36 she is still in remission and stops etanercept. 2 months after giving birth the disease relapses but she wants to breastfeed and would like to restart etanercept. We agreed and 3 months after restarting anti-TNF RA is again in remission. In January 2017 her RA is inremission for 15 months and keeps her medication with etanercept every other week because she plans another pregnancy.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.7144

FRIDAY, 16 JUNE 2017

Latest advances in the treatment and management of psoriatic arthritis and the latest news on the use of Biosimilars in RMDs

SP0143 **A NEW DAY FOR PEOPLE WITH PSORIATIC ARTHRITIS: A HETEROGENEOUS DISEASE THAT CAN BE TREATED WELL?**

L.C. Coates. *Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, United Kingdom*

This talk will summarise recent advances in research around the treatment of psoriatic arthritis (PsA). Firstly there will be an update on research that shows the importance of treating patients promptly when they are diagnosed. Then results from studies of new therapies for both psoriasis and psoriatic arthritis will be shown to highlight the drugs that have recently become available in the clinic or are likely to be become available in the next few years. This will include new biologic disease modifying drugs with different targets including those that target interleukin 17 and interleukin 23 as well as new oral medications that are part of a family called small molecules. The role of these new therapies and how they compare to existing therapies in the clinic will be addressed. Finally there will be a summary on the research of how to use the existing and new therapies in the clinic including the use of the "treat to target" strategy.
Disclosure of Interest: L. Coates Grant/research support from: Abbvie, Janssen, Consultant for: Abbvie, BMS, Celgene, Janssen, Lilly, MSD, Novartis, Pfizer, Sun Pharma, UCB
DOI: 10.1136/annrheumdis-2017-eular.7145

SP0144 **BIOSIMILARS IN RHEUMATIC DISEASES: SOCIETY CHANCES VERSUS PATIENT CONCERNS**

A.A. Den Broeder. *Rheumatology, St. Maartenskliniek, Ubbergen, Netherlands*

Biosimilars are biologically but also in clinical practice for all intents and purposes identical to the original drug, as has been shown in blinded trials. But the perception amongst patients and sometimes physicians is one of possible inferiority, therefore they are often reluctant to transition to a biosimilar. However, although the listed prices of biosimilars and original products are the same, discounts are often higher for biosimilars, and widespread adoption of biosimilars drives the mean discount opt. So, society, hospitals, insurance companies and governments have preference for introduction of biosimilars to drive costs down.
Starting in new patients with a biosimilar is not controversial. Transitioning existing users from originator to biosimilar however is. This field has some interesting aspects, two of which will be elaborated on:
1/ balance of power, interests and ethics: different approaches are used by hospitals, insurance companies and governments to get biosimilars in use (collective buy e.g.). Big pharma are sometimes using campaigns to discredit biosimilars (create FUD, Fear Uncertainty and Doubt) towards patients and doctors, although some pharmaceutical companies are making original biologicals as well as biosimilars. Scientific societies of doctors have different recommendations, based on different beliefs towards biosimilars. In Most countries, Patients freedom of choice and right for best care are seen as paramount, but the other side of the coin might be that patients can be asked to adhere to a "social contract" to help in making healthcare financially sustainable for all.
2/ nocebo and attribution in open label transitioning: blinded research has shown that tansitioning to a biosimilar is not different with regard to safety and effect than continuing the original biological. However, in clinical practice a patient and physician knows that the patient has changed to a biosimilar. This may lead to nocebo effects (due to the perceived inferiority of the drug, experiences of subjective adverse effects and loss of efficacy are induced). In addition, adverse events of loss of efficacy that occurs independent of drug switch might be attributed to the biosimilar, called incorrect causal attribution. Both effects lead to more patient stopping a biosimilar after unblinded switch than in blinded studies. Prevention of nocebo and attribution in daily care is perhaps possible using a variety of techniques (e.g. restriction of fall back to originator, n=1 blinded provocation test, biobetter communication, patient incentive, patient/physician education), but this requires more research.
In summary, the use of biosimilars is a chance for society to maintain healthcare affordable, but it represents a challenge to maximise this potential.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.7222

FRIDAY, 16 JUNE 2017

From pre-RA to established RA

SP0145 **PATHOPHYSIOLOGIC PROCESSES LEADING TO THE DEVELOPMENT OF AUTOIMMUNITY**

R. Toes. *Rheumatology, Leiden University Medical center, -Leiden, Netherlands*

Rheumatoid arthritis (RA) is a common complex disease characterized by chronic inflammation which results in joint destruction and significant disability in those affected. According to the World Health Organisation, within 10 years of onset, at least 50% of patients in western countries are unable to sustain a full-time job bringing about detrimental consequences to patients as well as exorbitant societal costs. The cause of RA remains unknown. Human genetic studies have provided valuable insight with over 100 genetic risk factors identified to date. Genetic variants at the human leucocyte antigen (HLA) locus remain the most prominent genetic risk factor. Smoking is the best known environmental factor to date. Microbial triggers have also long been postulated in RA although specific microbes involved in disease pathogenesis remain to be identified.
The majority of RA patients (60–70%) harbors autoantibodies, including Rheumatoid factors (RF) and autoantibodies against modified self-antigens, commonly termed Anti-Modified Protein Antibodies (AMPA). A prominent example of AMPA are Anti-Citrullinated Protein Antibodies (ACPA). ACPA are highly disease-specific biomarkers of important diagnostic and prognostic value, with ACPA-positive patients being at risk for rapidly progressive, destructive and systemic disease. The strongest genetic risk factors for RA, the so-called HLA-shared epitope (SE) alleles, associate only with ACPA-positive-disease, indicating that ACPA define a specific disease entity within the complex group of symptoms clinically defined as RA. Current concepts of RA pathogenesis hold that a sequence of events leads to the development of ACPA-positive disease. Environmental factors are thought to cause an initial break of tolerance leading to the generation

of ACPA. This initial development of auto-immunity appears to be independent of the disease-predisposing HLA-molecules. In most patients, this early event generates a polyclonal yet limited, mostly low-level autoantibody response that can be present for many years in the absence of clinical symptoms. Upon a putative second trigger, the ACPA epitope recognition repertoire broadens, more isotypes are being used, and ACPA serum levels rise. This is followed by precipitation of disease and is likely associated with the presence of the predisposing HLA-molecules. While the nature of this second trigger is presently unknown, the second event that initiates the broadening of the auto-immune response, in particular the citrulline-specific immune response, could mark a crucial moment upon which the auto-immune response becomes self-perpetuating and, potentially, irreversible.

Despite the many facets of ACPA revealed in the past two decades summarized above, it is not known how a breach of tolerance towards citrullinated proteins is mediated, or how ACPA-producing B-cells emerge.

Provision of T-cell help is crucial to convey the ability to B cells to modify the B cell receptor through somatic hypermutation. At present, it is unknown how ACPA- or other Anti-Modified Protein Antibody (AMPA)-producing B cells are "helped" by CD4+ Thelper cells, but it is often speculated that an auto-reactive T-cell response is crucial for their appearance. Our recent data show that such help could be provided by T-cells recognizing foreign proteins that have undergone a post-translational modification. In mice, AMPA-responses recognizing modified self-proteins are readily induced by immunization with modified proteins of non-selforigin. This is explained by the observation that the murine AMPA-response was, both at the monoclonal- and polyclonal level, highly cross-reactive towards multiple modified proteins, including proteins of self- and foreign origin. A similar observation was made analyzing the AMPA response in sera from RA patients. These data are important as the cross-reactive nature of AMPA could explain how autoreactive B-cell responses against PTM self-proteins can be induced by exposure to PTM foreign proteins thereby providing new insights on the breach of autoreactive B-cell tolerance.

Taken together, the analysis of the fine-specificity and recognition pattern of antibodies against modified proteins in RA during different phases of disease, together with detailed studies on the the identification, isolation and phenotypic characterization of auto-reactive B cells that express AMPA starts to shed light on the earliest phases of autoimmunity in RA.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.7218

SP0146 CAN WE PREDICT WHO IS GOING TO DEVELOP RHEUMATOID ARTHRITIS?

D. Van Der Woude. *Rheumatology, Leiden University Medical Center, Leiden, Netherlands*

To accurately predict disease development can be considered the "holy grail" of risk factor research. It holds the potential to employ preventive treatment thereby nipping RA in the bud.

This presentation will review familial risk in RA and the underlying genetic risk factors, as well as environmental risk factors for disease. Autoantibodies are a potent prognostic marker when it comes to the risk of developing RA, and play a key role in current pathophysiological hypotheses. The newest players in the autoantibody field, and latest concepts of how the various risk factors contribute to disease onset will be discussed.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.7141

SP0147 CAN WE PREVENT THE ONSET OF RHEUMATOID ARTHRITIS IN HIGH RISK INDIVIDUALS?

K.D. Deane. *Division of Rheumatology, University of Colorado Denver, Aurora, United States*

Multiple studies have demonstrated that rheumatoid arthritis (RA) related biomarkers can identify individuals without inflammatory arthritis who are at high-risk for the future development of clinically apparent synovitis and classified RA. These findings have led to the development of several prevention trials in RA that have either been completed, or are underway. With these exciting developments as background, this lecture will discuss multiple aspects of RA prevention including the role of biomarkers and other factors in developing robust prediction models for future RA, and methods to identify individuals before they develop RA. In addition, this lecture will discuss specific preventive approaches to RA such as clinical trial design and choice of preventive interventions that are based on our growing understanding of the mechanisms of RA development.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.7235

SP0148 PATHOPHYSIOLOGY OF ESTABLISHED RA SYNOVITIS

B. Lauwerys. *Department of Rheumatology, Université catolique de Louvain, Brussels, Belgium*

Access to synovial tissue through - minimally invasive - synovial biopsy procedures led to the implementation of new translational approaches to our understanding of established RA. In this lecture, we will illustrate how the identification of different synovial pathotypes and related molecular pathways translated into clinically relevant phenotypes, such as disease severity or response to therapy. Validation of these concepts in ongoing large-scale multi-centric trials will be key to the integration of synovial assessment tools in clinical practice.

Disclosure of Interest: B. Lauwerys Shareholder of: DNALytics

DOI: 10.1136/annrheumdis-2017-eular.7282

FRIDAY, 16 JUNE 2017

Laboratory course - from the clinic to the lab and back II

SP0149 NEW TRENDS IN BIOMARKERS IN INFLAMMATORY JOINT DISEASES

E. Feist. *Rheumatology, Charite University Hospital, Berlin, Germany*

This lecture provides an overview on new developments in biomarker research and standardization in inflammatory joint diseases. The presentation includes an introduction of established and new biomarkers in serum and synovial fluid as well as methods for their detection. Furthermore, an overview on different modifications of auto-antigens (including citrullinated and carbamylated isoforms) and their role in immune response and pathogenesis of disease will be given. The diagnostic performance of new and established biomarkers will be discussed including antibodies against modified antigens also illustrated by difficult to diagnose cases. In this context, special attention will be attributed to the predictive value of biomarkers for diagnosis of disease and treatment response.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.7200

FRIDAY, 16 JUNE 2017

Switching T on and off: how T cells drive and regulate chronic inflammation

SP0150 TH17 CELLS DRIVE AND REGULATE TISSUE INFLAMMATION

V. Kuchroo on behalf of Basic and Translation Science. *Evergrande Center for Immunologic Diseases, Harvard Medical School, Boston, United States*

Recently a subset of interleukin (IL)-17-producing T cells (T_H17) distinct from T_H1 or T_H2 cells was described and shown to have a crucial role in the induction of autoimmune tissue injury. Accumulating data suggests that there are three distinct steps in Th17 differentiation: *Induction*, *Amplification* and *Stabilization* mediated by distinct cytokines. Whereas TGF-b + IL-6 or IL-1 + IL-6 induces them, IL-21 amplifies Th17 cells, IL-23 stabilizes the phenotype of Th17 cells. Loss of any of the cytokines (TGF-β, IL-1, IL-6, IL-21 or IL-23) in the pathway results in a defect in generation of Th17. However not all Th17 cells are pathogenic and induce autoimmunity, IL-23 is a key cytokine that induces pathogenicity in Th17 cells (Lee et al., 2012). Using expression profiling at very high temporal resolution, novel computational algorithms and innovative nano-wire based "knock-down" approaches, we have developed a regulatory network that governs the development of Th17 cells. In addition to high-density temporal microarray analysis, we have performed single-cell RNA-seq of Th17 cells in order to characterize cellular heterogeneity, identify subpopulations, functional states and learn how gene expression variation affects Th17 effector functions. We have identified novel regulators of Th17 cells both *in vivo* and *in vitro* that do not affect Th17 differentiation but affect pathogenic vs. non-pathogenic functional states of Th17 cells. Some of the regulators that make Th17 cells non-pathogenic are also utilized by CD8+ T cells to induce T cell "exhaustion" or "dysfunction". These novel inhibitory molecules cooperate with other known "check-point" co-inhibitory receptors to suppress anti-tumor immunity.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.7254

SP0151 SWITCHING OFF UNWANTED IMMUNE RESPONSES: THE MECHANISM OF ANTIGEN-SPECIFIC IMMUNOTHERAPY WITH T CELL EPITOPES

D.C. Wraith. *Institute of Immunology & Immunotherapy, University of Birmingham, Birmingham, United Kingdom*

Control of autoimmune and allergic conditions can be reinforced by tolerance induction with peptide epitopes; this presentation will focus on the mechanisms involved. Peptides must mimic naturally processed epitopes. Peptide induced peripheral tolerance is characterised by the generation of anergic, IL-10 secreting $CD4^+$ T-cells with regulatory function. $CD4^+$ T-cells become anergic following their first encounter with peptide. The loss of proliferative capacity correlates with a cytokine switch from a pro-inflammatory to a phenotype characterised by secretion