Conclusions: (1) Shedding of the Fc receptor CD16 has an unexpectedly complex impact on NK cell responses. Shedding this receptor renders NK cells less potent at CD16-mediated activation, as expected, but promotes the detachment from opsonized targets to aid sequential target cell surveillance. Thus, counter-intuitively, shedding of Fc receptor CD16 can positively impact immune responses.

(2) Genetic variation modulates the nanoscale organisation of inhibitory NK cell receptors, which in turn impacts receptor signalling. This may be important in how genetic variation impacts immune responses and disease susceptibilities.

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SP0095 INFLAMMATORY CYTOKINES AS KEY MESSENGERS OF THE IMMUNE SYSTEM

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Intercellular communication is mediated by direct cell contact as well as via soluble factors like cytokines. Cytokines are signalling proteins that bind to a receptor on a recipient cell, thereby activating an intracellular signalling pathway. This in turn may affect various biological functions like activation, differentiation or proliferation of the cell.

In this lecture, the role of inflammatory cytokines as key messengers of the immune system will be discussed. Targeting of hallmark cytokines in rheumatic diseases, like TNF, IL-6, GM-CSF, and IL-17, has changed the therapeutic landscape, and novel pro-inflammatory cytokines are currently under investigation as therapeutic targets. Furthermore, anti-inflammatory cytokines may be applied as therapeutic agents.

Cytokines act on the innate and adaptive immune system, as well as on non-immune cells. How exactly do these key messengers control our immune system in health and disease?

To unravel the cytokine network that drives the dysregulated immune system in rheumatic diseases, findings from *in vitro* studies, animal experiments and clinical trials will be combined.

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FRIDAY, 15 JUNE 2018

WIN and HOT session

SP0096 ADVANCES IN THE MANAGEMENT OF OSTEOPOROSIS

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The number of fractures related to osteoporosis is expected to increase in the next few decades, because of the increasing number of frail elderly patients at high risk of falls and fractures. Guidelines are available worldwide for the screening of patients at high risk of fracture, and for appropriate treatment including non pharmacological treatments for falls prevention: A number of questions will be discussed during the session. Why should we treat? Because the burden of osteoporosis is related to fractures, and their consequences on morbidity, and even on mortality for the more severe ones. When should we treat? There is an immediate increase of sustaining a new fracture in the 2–3 years following a first one; this represents a unique window of opportunity for treatment. How should we treat? Treatments are effective in prevention of fracture, and re fracture, providing that we use the more effective treatment, with the appropriate sequences. How long should we treat? The treat to target strategy must be used in patients having a low bone mineral density, and obtaining a T score above –2 is a reachable target. A current challenge is the patients' view on side effects of the treatments; although they are very rare, their perception is very high. A number of qualitative studies sought to assess patients' fears and beliefs and provide wordings to clarify the fracture risk concept. The prevention of fragility fractures is now within our reach.

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SP0097 CHECK-POINT INHIBITORS: WHAT ARE THEY USED FOR, ABOUT SIDE-EFFECTS AND PREDICTION OF EFFICACY

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The development of immune checkpoint inhibitors targeting cytotoxic T-lymphocyte antigen 4 (CTLA-4), programmed cell death-1 (PD-1) and programmed

death-ligand 1 (PD-L1) have significantly improved the treatment of a variety of metastasized cancers, such as melanoma, lung cancer, renal and bladder cancer. Immune checkpoint inhibitors enhance antitumor immunity by blocking negative regulators of T-cell function that exist both on immune cells and on tumour cells. Although these agents can lead to remarkable responses, their use can also be associated with unique immune-related adverse effects (irAEs).

Consensus guidelines regarding the treatment of the most common irAEs including rash, colitis, hepatitis, endocrinopathies, and pneumonitis have been established. The mainstay of irAE treatment consists of immunosuppression with corticosteroids or other immunosuppressant agents such as infliximab; most irAEs will resolve with appropriate management.

Nevertheless, a substantial proportion of patients treated with checkpoint inhibitors do not respond. Several markers have shown promising predictive value, including baseline and post-treatment changes in leucocyte counts, lactate dehydrogenase and C-reactive protein. To date, research on routinely available blood, biopsies and clinical markers has focused primarily on checkpoint inhibitors use in melanoma and lung cancer, but preliminary evidence is emerging for other cancer types.

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SP0098 HOT SESSION: IMMUNE RELATED ADVERSE EVENTS FROM CHECKPOINT INHIBITOR THERAPY

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Advances in cancer immunotherapy have made it now one of the cornerstones of care for patients with malignancies. Much of these advances have come through the development of checkpoint inhibitors which target negative regulatory signals in the adaptive immune response leading to re-invigoration of cell mediated immunity which had become suppressed or exhausted within the tumoral environment. With such reinvigorated immune response a collateral effect has been the development of autoimmune and/or autoinflammatory complications (known as immune related adverse events or irAEs) seen in virtually every organ system. Among these are rheumatic complications estimated to observe in 4%–7% of the exposed population and often requiring acute and chronic immunosuppression to adequately manage. Numerous rheumatic irAEs have been reported the most common of which is inflammatory arthritis as well as myositis, PMR, vasculitis and sicca and others. Rheumatologists are now increasingly seeing such patients as the proliferation of checkpoint therapy increases (three are estimated to be several hundred thousand patients on such therapy in the US with another 1 00 000 patients in varying clinical trial of cancer immunotherapeutics). irAEs in general have been posited to be the potential Achilles heel of cancer immunotherapy. Rheumatologist will be increasingly called upon to take key roles in the management of irAEs with a broad spectrum of immunosuppressive and targeted therapies.

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FRIDAY, 15 JUNE 2018

Challenges in systemic lupus diagnosis

SP0099 A CASE OF PAINFUL DYSPNEA

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A 20-year-old female patient was admitted to ER due to dyspnea and stinging chest and interscapular pain, associated with neck pain worsened by physical exercise.

She reported worsening of respiratory symptoms in the past ten days and concomitant onset of acrocyanosis. At physical examination she displayed tachycardia and tachypnea, no abnormalities at lung auscultation, with oxygen saturation 94% at pulse oxymeter. Arterial blood gas tests showed a decreased pO₂ and pCO₂. Urgent blood examination showed low leucocyte count 2900/mm³ and mild normocytic anaemia Hb 10.8 g/dl. Due to chest pain, dyspnea and concomitant gas findings, a CT scan was prompted in the suspicion of pulmonary embolism, yet no vascular abnormalities were shown, but a small rim of pleural fluid at the right base.

The patient was admitted to Internal medicine department where she underwent pulmonary function tests showing a restrictive respiratory pattern with decreased TLC and but normal KCO. HRCT was performed ruling out interstitial lung disease. Elevation of right emidiaphragm was shown at AP imaging.

Upcoming blood and urine analysis showed increased serum creatinine with proteinuria 1 g/day and hematuria. Following interdisciplinary consultation immunologic investigations were performed showing elevated titres of ANA, anti-dsDNA and decreased complement levels.

The patient was diagnosed with SLE with shrinking lung and active renal involvement and was referred to Rheumatology Unit where treatment was initiated with prednisone 0.5 mg/kg/day and mycophenolate mofetil 2 g/day. Respiratory symptoms as well as pulmonary function tests improved within some days after initiation of steroid treatment.

After 12 months the patient displayed still abnormally restrictive respiratory pattern at pulmonary function tests, despite clinical improvement. She was also displaying proteinuria 0.8 g/day with active urinary sediment and rising anti-dsDNA antibodies. Thus, she underwent Rituximab 1 g 2 weeks apart with subsequent improvement of both renal and respiratory signs and symptoms. Improvement remained stable at 2 years.

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SP0100 NEUROPSYCHIATRIC LUPUS OR NOT?

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A 30 year old woman with a 10 year history of SLE was admitted in the Emergency Department with severe headache, drowsiness and vertigo. Brain magnetic resonance imaging revealed an extensive ischaemic stroke in the cerebellum. During the month prior to the episode, the patient had not been feeling well, complaining for arthralgias, fatigue, hair-loss, low grade-fever and the progressively deteriorating headache.

Should this patient's ischaemic stroke be attributed to lupus? Moreover, if yes, does it represent a thrombotic or an inflammatory process?

The second patient, a 38 year old woman of Asian descent, was referred to our Unit due to refractory seizures and status epilepticus for the past two years. On initial presentation, she had fever, mild leukopenia, low C3 and C4 levels and positive ANA (titer 1:320). She had been previously treated by different neurologists, with a combination of antiepileptic drugs, with no success. Brain magnetic resonance imaging was repeatedly unremarkable and electroencephalogram revealed mild epileptiform changes.

Does this patient represent a case of *bona fide* neuropsychiatric lupus?

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FRIDAY, 15 JUNE 2018

Understanding the language of basic research, epidemiology and health services articles

SP0101 UNDERSTANDING THE LANGUAGE OF EPIDEMIOLOGY ARTICLES

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'Clinical and Epidemiological Research' is one of two headings for original articles in the Annals of Rheumatic Disease. But what is epidemiological research? What do all those different types of bias mean? And what do all of those bizarre statistical terms mean? How can I make sense of the research, and how is it relevant to my practice? Answer: Attend the lecture and find out.

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SP0102 UNDERSTANDING THE LANGUAGE OF HEALTH SERVICES ARTICLES

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The only difference of Health services Research with other types of research is the study unit observed. This goes beyond individuals and it may likely refer to doctors, their clinics, or even countries. We still need to work on hypotheses, although some exploratory research can be done; and we always need to start with a research question. If you are unable to find a research question in an original article, remember: stop reading. We will review some of the top questions answered by health services research, such as performance of doctors and services, efficacy of complex interventions, and inequalities. In addition, we will review basic concepts, such as what is an indicator, very frequently used as outcome

measures, or what makes a best practice, as well as some special difficulties, such as multilevel (AKA hierarchical) models or instrumental variables. To end, we will review basic concepts in qualitative research, needed to understand the papers dealing with health services research.

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FRIDAY, 15 JUNE 2018

Joint EULAR – ESSR session on: The role of MR imaging in rheumatic diseases and its clinical implications

SP0103 INDICATIONS AND CLINICAL IMPLICATIONS OF MR IMAGING IN RA

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In clinical practice, rheumatologists most frequently use imaging techniques to explore bone and soft-tissue involvement in RA. MRI is the best noninvasive, observer-independent imaging modality technique that has advantages over clinical examination and conventional radiographs for assessing joint damage and soft tissue inflammation, which are common features even in the earliest stages of RA. MRI provides multiplanar images with a high degree of resolution without ionising radiation. Based on these characteristics, MRI identifies early signs of arthritis where other imaging modalities failed. Main indications for MRI in RA consequently are to determine joint involvement, differential diagnosis and early diagnosis of inflammation, such as synovial changes, changes in tendon sheaths and bursae, as well as bone marrow oedema (BME), not detected by clinical examination, BME even also not by ultrasound. The presence of BME has added benefits to modern diagnostic criteria, and anti-citrullinated peptide antibody positive patients have demonstrated higher osteitis scores. Additionally, MRI helps to assess and define prognosis and outcome, because synovitis and BME are risk factors for the progression of structural changes. Growing data on the validity of MRI in predicting and assessment of treatment response are available as well. Recent evidence has demonstrated that MRI inflammatory parameters are frequent findings in RA with clinical remission and low disease activity states, which has impact on treatment changes. MRI helps to identify at-risk individuals with arthralgia without clinical arthritis, furthermore these patients with defined RA and high risk for disease progression leading to therapy escalation and also may limit unnecessary treatment with potentially expensive biologic drugs. Studies that directly assess how MRI use in clinical care might even influence decision making, quality of care and cost effective delivery of that care. Clinical studies answering these questions of regular use of MRI are warranted.

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SP0104 INDICATIONS AND CLINICAL IMPLICATIONS OF MAGNETIC RESONANCE IMAGING IN SPONDYLOARTHRITIS

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Axial spondyloarthritis (axSpA) is a chronic inflammatory disease that affects the sacroiliac joints and the spine. Whereas early disease is characterised by inflammation, severe structural damage may occur later in the disease course.

Magnetic resonance imaging (MRI) can detect inflammatory lesions (bone marrow oedema (BME)/osteitis), and structural lesions (erosions, bone spurs, ankylosis and fat metaplasia).

In patients suspected for axial spondyloarthritis (axSpA) in clinical practice, MRI has a key role for early diagnosis of axial SpA, since MRI is by far the best available method for early detection of inflammation in the spine and sacroiliac joints. MRI is also more sensitive and accurate for assessment of structural sacroiliac changes than conventional radiography. Differential diagnoses, including anatomical variations, degenerative disease, osteitis condensans ilii, infections and others, should of course always be considered.

In patients with diagnosed axial SpA, MRI is the method of choice for sensitive objective monitoring of axial inflammation, and also peripheral inflammation and damage can be assessed. Whole-body MRI is a promising method, which may become important for simultaneous assessment of axial and peripheral disease manifestations in one examination. Furthermore, MRI can provide information which may help predict the response to therapy and the risk of subsequent progression of structural damage.