mg/L; SD±8,4). Association alleles of HLA-A, and DR are depicted in table 1. No association was found with HLA-B alleles.

Table 1. Associated Alleles with CHIKV

	Patients	Control	Odds Ratio	CI	*p*	C*p*
Resistance						
*A*28*	0	11	0,0	0,0-INF	0,002	0,040
*A*29*	6	24	0,2	0,0–0,6	0,002	0,048
Susceptibility						
*A*68*	14	2	9,9	2,1–45,1	0,000	0,008
*DRB1*01*	21	5	6,4	2,3–17,9	0,000	0,001
*DRB1*04*	26	11	3,6	1,6–8,0	0,000	0,010
*DRB1*13*	24	8	4,6	1,9–11,1	0,000	0,004

CHIKV: chikungunya virus infection; CI: confidence interval 95%; C*p*: Bonferroni corrected *p* value.

Conclusions: Our study demonstrated the alleles *A*28* and *A*29* to be associated with resistance to CHIKV, and alleles *A*68*, *DRB1*01*, *DRB1*04* and *DRB1*13* to be associated with susceptibility to CHIKV. No association was found in any HLA-B alleles.

Disclosure of Interest: None declared

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SAT0576 IMPROVED CLINICAL SCENARIO FOR CHIKUNGUNYA DIAGNOSIS

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Background: The World Health Organization (WHO) criteria for chikungunya virus infection (CHIKV) have a specificity of 91,1% with a low sensibility of 56,2%, which decreases the ability to detect patients with the infection. Because of this issue a group of rheumatology, epidemiology and bacteriology experts in diagnosing and treating CHIKV patients performed an agreement consensus on the clinical characteristics of CHIKV infection and proposed a set of clinical criteria. In order to test the performance of the new criteria and improve sensibility and specificity a clinical scenario was developed with the agreements from the expert panel and the clinical characteristics with higher odds ratios.

Objectives: To improve sensibility and specificity of a set of clinical criteria for the diagnosis CHIKV.

Methods: Odds ratios of the clinical features of patients with CHIKV infection were analysed. A clinical scenario was developed and sensitivity and specificity was calculated.

Results: 37 clinical characteristics were evaluated in a cohort of 604 patients with suspicion of CHIKV. From those, 29 exhibited statistical significance and only 10 had high odds ratios (table 1). A clinical scenario with the following joint involvement (symmetrical arthritis of shoulders or wrists or hands or knees or ankles or feet) or systemic symptoms (fever or rash or myalgia or fatigue) poised a sensitivity of 74,2% (PPV: 83,5%) and a specificity of 88,4% (NPV: 81,2%). The following clinical characteristics extracted from the agreements of the consensus group were added to the clinical picture: origin from an epidemic area and abrupt onset of symptoms.

Table 1. Clinical Characteristics with High Odds Ratios

	WHO Confirmed Case Criteria		Odds Ratio	CI (95%)	*p*
	Met Criteria (n: 150)	Did Not Met Criteria (n: 454)			
Symmetry (%)					
Arthritis	80 (53,3)	19 (4,2)	24,8	11,2–54,6	<0,0001
Arthritis (%)					
Wrists	16 (10,7)	5 (1,1)	22,2	3,6–204,1	<0,0001
Hands	42 (28,0)	8 (1,8)	36,7	8,8–152,6	<0,0001
Knees	20 (13,3)	5 (1,1)	10,0	2,8–33,8	<0,0001
Ankles	42 (28,0)	9 (2,0)	24,4	7,5–79,3	<0,0001
Feet	39 (26,0)	8 (1,8)	69,3	9,6–510,8	<0,0001
Myalgia (%)	106 (70,7)	59 (13,0)	13,0	8,1–20,7	<0,0001
Fatigue (%)	137 (91,3)	69 (15,2)	16,9	10,9–26,8	<0,0001
Fever (%)	150 (100)	30 (6,6)	13,1	8,4–20,5	<0,0001
Rash (%)	109 (72,7)	45 (9,9)	14,0	8,5–22,9	<0,0001

WHO: World Health Organization; CI: Confidence Interval.

Conclusions: Our study demonstrated that the proposed clinical scenario for suspicion of CHIKV improves diagnostic sensibility with a slight decrease in specificity, increasing the chance of diagnosis without the need for laboratory tests. We propose that a patient from an epidemic area (fulfilling epidemiological criteria according to the WHO) with an abrupt onset of a clinical picture of symmetrical arthritis of any of the following joints: hands, wrists, shoulders, knees or feet, or the presence of any of the following systemic symptoms: fever, rash, fatigue or myalgia, is more likely to have CHIKV infection.

Disclosure of Interest: None declared

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SAT0577 MUSCULOSKELETAL MANIFESTATIONS OF TUBERCULOSIS: AN OBSERVATIONAL STUDY

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Background: Data of musculoskeletal manifestations of tuberculosis is limited to case reports, series or retrospective study. To our knowledge there is no prospective study which has addressed this issue. So, we conducted this study to create awareness among the doctors about musculoskeletal manifestations of tuberculosis.

Objectives: To study the musculoskeletal manifestations of tuberculosis.

Methods: It was a prospective observational study which was conducted at a referral Tuberculosis Hospital in North India in the month of September & October 2016. Patients from outpatient and inpatient department of pulmonology were recruited irrespective of the duration of anti tubercular therapy.

We included patients who had active tuberculosis as per World Health Organization (WHO) 2010 criteria. Patients with other chronic illnesses were excluded. A detailed history, examination and appropriate investigations (blood, urine, serological and radiological) of the 100 consecutive patients fulfilling the inclusion criteria was recorded

Results: Mean age of patients was 32.16±12.93 years. Male to female ratio was 43:57. Mean duration of disease was 6.85±8.83 months. Of the 100 patients, 60 (60%) had pulmonary tuberculosis. Pleural tuberculosis presenting as pleural effusion was seen in 17 (17%) patients. Abdominal tuberculosis was seen in 9 (9%), tuberculous lymphadenopathy in 8 (8%) and pott's spine in 4 (7%). Eye tuberculosis and tubercular breast lump was seen in 1 patient each.

83 (83%) patients had first episode of tuberculosis while the other 17 (17%) patients had second episode of tuberculosis. 74 (74%) patients were on category 1 anti tuberculosis treatment (ATT), while 23 (23%) were on category 2 ATT and 3 (3%) were on modified ATT. Mean duration of ATT was 1.79±1.34 months.

Fibromyalgia was classified in 21 (21%) patients, polyarthralgia's were seen in 9 (9%), pott's spine in 7 (7%), osteomyelitis in 4 (4%) and scleritis in 2 (2%) patients. Uveitis, tenosynovitis, erythema induratum, subcutaneous abscess and dactylitis was seen in 1 (1%) each. Rheumatological manifestations as septic arthritis, DILE, poncet's arthritis, tendinopathy, amyloidosis, gout, erythema nodosum and myositis were not seen in any patient.

In 21 patients who had fibromyalgia, 11 patients developed fibromyalgia with 2nd episode of tuberculosis amounting to 60.75% patients.

Conclusions: This is the first prospective study to look at the musculoskeletal manifestations of tuberculosis. Patients with active tuberculosis were found to have various rheumatological manifestations.

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SAT0578 LEFLUNOMIDE INHIBITS THE APOPTOSIS OF HUMAN EMBRYONIC LUNG FIBROBLASTS INFECTED BY HUMAN CYTOMEGALOVIRUS

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Background: The immunomodulatory drug leflunomide (LEF) is frequently used for treating human cytomegalovirus (HCMV), but its antiviral mechanism is still unclear.

Objectives: In this study,we therefore investigated the effects of the active LEF metabolite A771726 on the HCMV lifecycle in human embryonic lung fibroblasts. We clarified the mechanism of LEF antiviral infection, and provide a new way to treat immune dysfunction patients with HCMV infection.

Methods: The experiment was divided into four groups:the control group, the HCMV group, the ganciclovir + HCMV group as well as the LEF + HCMV group. MTT was usedfor assessmentof the cell inhibitory rate. Apoptosis was measured by staining with fluoresceinisothiocyanate Annexin V and propidium iodide. Statistical significance was determined by paired *t*-test using SPSS software.

Results: The results of the study showed that cell proliferation was significantly inhibited by HCMV at 24 hours and 48 hours. With increasing HCMV concentration, the value-added inhibition of the cells was significantly decreased compared with the control group, and was statistically significant ($P<0.01$). Ganciclovir can increase proliferation of cellsinfected with HCMV;compared with the control group it was statistically significant ($P<0.05$). Meanwhile,with LEF treatment cell proliferation was significantly improved at 24 hours and 48 hours, with statistical significance ($P<0.05$). The apoptosis rate of human embryonic lung fibroblasts infected with HCMV increased significantly at 24 hours, 48 hours and 72 hours,and as time goes on the apoptosis rate increases statistically significantly ($P<0.01$) compared with the control group The apoptosis rate of theHCMV infection group decreased by adding LEF,and was statistically significant ($P<0.05$).

Conclusions: In this studywe show that LEF is an exciting new drug for cytomegalovirus infection. LEF significantly inhibited HCMV infection-induced apoptosis and proliferation, playing an important role in the treatment of patients infected by HCMV. In this study we explored the potential usefulness of LEF for

cytomegalovirus infection and found it to be a cost-effective new treatment for cytomegalovirus infection that deserves further study.
Disclosure of Interest: None declared
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SAT0579 LOW DOSE IL-2 RESTORES IMBALANCE BETWEEN TH17 AND REGULATORY T CELLS IN PATIENTS WITH CONNECTIVE DISEASE COMBINED EBV/CMV VIREMIA

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Background: DMARDs are the most important medicine in treatment of autoimmune disease. However, excessive using DMARDs lead to decrease immune-function, which increasing opportunistic infection, such as EBV, CMV viremia. Recent study show the imbalance between T help cell 17 (Th17) and regulatory T cell (Treg cell) is a pivotal cause of autoimmune disease and correction of this imbalance to be a potential therapy. So whether low dose IL-2 restores the balance of Th17/Treg and improve immune function?
Objectives: To investigate the effect of low-dose IL-2 on Treg and effector lymphocyte subsets in patients with connective tissue disease (CTD) combined EBV or CMV viremia.
Methods: Clinical records of 70 CTD patients combined EBV or CMV viremia, hospitalized from May 2012 to January 2017 in the second Hospital of ShanXi medical university (Group infection), were analyzed. The group includes 21 patients who received rhIL-2 after infected CMV or EBV, and 12 continue receiving DMARDs. As control, we selected 70 health persons (Group health) whose age matched with group infection, 70 naïve CTD patients with no treatment (Group treatment-naïve), and 70 CTD without viremia patients having glucocorticoid and DMARDS medical history (Group Treatment-DMARDS). The two groups' underlying diseases are matched with the Group infection. The absolute numbers and proportions of peripheral lymphocytes (T cells, B cells, NK cells, the total number of the three cells, CD4+ T cells, CD8+ T cells), and CD4+ T cell subsets (Th1, Th2, Th17, Treg cells and Th1/Th2, Th17/Treg) were examined by flow cytometry.
Results: 1. The absolute count of Treg cells in the Group treatment-naïve was significantly low and Th17/Treg was notable increase compared with the Group health ($P<0.05$). The peripheral lymphocytes and Treg cells are notable low ($P<0.05$) and Th17/Treg was significantly increase ($P<0.05$) in the Group treatment-DMARDs compared with the Group treatment-naïve.
2. The peripheral lymphocytes, CD4+T cells subsets except Treg cells and Th1/Th2, Th17/Treg are significantly decrease in the Group infection compared with the Group treatment-DMARDs ($P<0.05$). While the absolute count of Treg cell was no different between the two groups.
3. After the course of rhIL-2 treatment, there were significantly increase of the peripheral lymphocytes and CD4+T cells subsets ($P<0.01$). Th17/Treg was significantly low after treatment. Compared with the patients who continue receiving DMARDs, all lymphocytes subsets had a rising trend in patients receiving rhIL-2 treatment.
Conclusions: The decrease of Treg cell number and imbalance of Th17/Treg may contribute to the pathogenesis of CTD. Excessive using glucocorticoid and DMARDs may augment this imbalance. On the other hand, these medicines decrease immune function, which leads to EBV and CMV viremia. Over the treatment of rhIL-2, immune function was improved and there was a more significant increase in the absolute count of Treg cells than Th17, and a consequently restore the balance of Th17/Treg.
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SAT0580 OSTEOARTICULAR TUBERCULOSIS: A RETROSPECTIVE STUDY OF 119 CASES

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Background: Bone and joint involvement in tuberculosis is uncommon. Wile osteoarticular tuberculosis most commonly occurs in the vertebral column, less frequently affected sites are the hip, knee and sacroiliac joints. The multifocal form of skeletal tuberculosis is exceptional.
Objectives: To evaluate the clinical and diagnostic features of osteoarticular tuberculosis.
Methods: We reviewed the files of all patients admitted to our department from 2000 to 2015 with a diagnosis of osteoarticular tuberculosis.
Results: We identified 119 patients (52 men, 67 female), having osteoarticular tuberculosis lesions. Mean age was 43 years [21–82]. Diagnosis delay was 4 months. Pain, low-grade fever and loss of weight were the most common presenting symptoms. All the patients consulted because of pain. The spine was involved in 81 patients. Peripheral osteoarticular tuberculosis was diagnostic in 38 cases, mainly in the knee (21 cases). Five patients have a multifocal involvement of the osteoarticular tuberculosis. The tuberculin skin test was positive in 75% of the cases. The diagnosis of spondylodiscitis was provided by CT-scan and /or magnetic resonance imaging. Paraspinal and epidural abscesses has been reported in 11 cases. Bacteriological and /or pathological diagnosis was made in 72 cases (60.5%). The Quantiferon test was done in 7 cases and was positive. The antibiotic treatment led to recovery in all cases. Tree patients have presented neurological signs.
Conclusions: Our results were similar to those of the literature. Elderly population was especially at risk. The idiagnosis can be delayed espacially in negative investigations. Therefore it is recommendable to do a very large screening tests especially in endemic areas.
Disclosure of Interest: None declared
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SAT0581 NON-TUBERCULOUS MYCOBACTERIAL (NTM) INFECTION IN PATIENTS WITH RHEUMATIC DISEASES: POSSIBLE IMPORTANCE OF PULMONARY BARRIER FUNCTION RATHER THAN SYSTEMIC IMMUNE STATE IN THE DEVELOPMENT AND EXACERBATION OF NTM INFECTION

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Objectives: To identify the risk factors of the development and exacerbation of NTM infection in patients with rheumatic diseases.
Methods: Among 7013 patients with rheumatic diseases visiting Toho University Ohashi Medical Center and Tokyo Medical Center, 20 patients were enrolled in this study by fulfilling the diagnostic criteria of NTM infection by The Japanese Society for Tuberculosis and The Japanese Respiratory Society, and being followed-up for more than 1 year. The medical records of enrolled patients were retrospectively reviewed.
Results: Eleven patients with rheumatoid arthritis, 4 patients with vasculitis, 3 patients with Sjögren's syndrome and 1 patient with dermatomyositis and systemic lupus erythematosus for each were enrolled in this study. *Mycobacterium avium* complex (MAC) was detected in 13 patients, *M. chelonae* in 2 patients, *M. abscessus* and *M.kansasii* in 1 patient each, and undetermined mycobacterium in 3 patients. Notably, bronchiectasis was the predominant pulmonary complication observed in 13 patients, and interstitial lung disease was observed in 5 patients. Although 7 patients experienced the exacerbation of NTM during the observation period, immunological state on NTM diagnosis including peripheral blood leukocyte (median 5.8×10^3 versus $7.0\times10^3/\mu L$; p=0.72), lymphocyte (median 1.3×10^3 versus $1.1\times10^3/\mu L$; p=0.10) and the serum IgG level (median 1379 mg/dL versus 1207 mg/dL; p=0.20) were within normal ranges and comparable between ever and never exacerbated patients, respectively, as well as the treatments for rheumatic diseases such as glucocorticoids and biological agents.
Conclusions: NTM infection in patients with rheumatic diseases develops based on the dysfunction of pulmonary barrier rather than the systemic immunosuppression.
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SAT0582 CHAGAS' DISEASE IN PATIENTS WITH AUTOIMMUNE DISEASES RECEIVING IMMUNOSUPPRESSIVE THERAPY. ANALYSIS OF 48 CASES

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Objectives: To analyze the main features at diagnosis and Chagas' Disease (CD) reactivation in patients with autoimmune diseases (AD) receiving immunosuppressive therapy (IT).
Methods: 13 patients with AD diagnosed with CD admitted to our Units between January to December 2016. In addition, we performed a systematic analysis of cases reported to date through a MEDLINE search. Inclusion criteria 1) adults with AD treat with iT (glucocorticoids [GC], disease-modifying anti rheumatic drugs [DMARDs] and biological drugs [BD]); 2) had confirmed or were positive for 2 serological test for CD. Reviews, experimental studies, duplicate publications, and abstracts were excluded.
Results: A total of 48 patients (13 from our Units and 35 from the literature search) fulfilled the inclusion criteria. There were 41 (85.4%) women, mean age of