Results: Carotid intima media thickness was positively associated with 1-demographic characteristics of the participants such as age of the participants ($p<0.001$), and age at RA sumptoms onset (p=0.001). 2-traditional cardiovascular risk factors such as systolic blood pressure ($p<0.001$), diastolic blood pressure (p=0.016), triglycerid level (p=0.016), and low densilty lipoprotein (LDL) (p=0.001). 3-inflammatory markers such as erythrocytes sedimentation rate (ESR) (p=0.020) and c-reactive protein (CRP) (0.020), and 4-renal function parameters such as uric acid level (p=0.006), urine microalbumin level (p=0.030). cIMT negativlely associated with high density lipoprotein (HDL) (p=0.037), 24 hours urine creatinine level (p=0.020) and glomerular filtration rate (p=0.008).
Conclusions: Subclinical renal function in conjunction with tarditional and non-traditional cardiovascular risk factors work synergistically to accelerate atheroscrlerosis in RA population.
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SAT0711 CHECKPOINT INHIBITOR THERAPY IN PATIENTS WITH ADVANCED MALIGNANCIES AND PREEXISTING RHEUMATOLOGIC DISEASE: THE MAYO CLINIC EXPERIENCE

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Background: Immune checkpoint inhibitors (specifically the anti-CTLA-4 antibody ipilimumab, and the anti-PD-1 antibodies nivolumab and pembrolizumab, have revolutionized the treatment of advanced malignancies. However, by virtue of their mechanism of action – that is, loss of T-cell inhibition and impaired self-tolerance, patients with underlying autoimmune and rheumatologic diseases were typically excluded from the clinical trials leading to the approval of these agents. Limited data, typically of single checkpoint inhibitors, exist for their safety in patients with autoimmune diseases. However, the risk for rheumatologic disease flare in patients exposed to checkpoint inhibitors is unknown.
Objectives: To determine the risk of rheumatologic disease flare in patients receiving checkpoint inhibitor therapy.
Methods: We retrospectively studied all patients who had received a checkpoint inhibitor (i.e. ipilimumab, nivolumab, pembrolizumab, or any combination thereof) for any malignancy on the Mayo Clinic Rochester, Minnesota campus between January 1st, 2011 and May 16th, 2016 (approximately 5,200 patients.) Of these patients, we identified those with preexisting rheumatologic disease according to specific diagnostic codes.
Results: Of the 16 patients identified (13 [81%] female; median [range] age, 68.5 [34–86]y), 6 had inflammatory arthritis, 3 had polymyalgia rheumatica, 2 had lupus, 2 had Sjogren's syndrome, 1 had temporal arteritis, 1 had IBD-associated spondyloarthropathy and 1 had gout. Patients were treated for the following metastatic/advanced malignancies: melanoma (9 [56%]), lung (5 [31%]) and lymphoma (2 [12%]) with; ipilimumab (4 [25%]), nivolumab (7 [44%]), pembrolizumab (5 [31.2%]) and ipilimumab/nivolumab (1 [6%]). Notably, in all cases, checkpoint inhibitor therapy was offered after failure of numerous other chemotherapies. Ten (62.5%) patients were on immunosuppressive therapy (mainly low dose prednisone and methotrexate) at the time of cancer diagnosis, and the majority (10 [62.5%]) were well-controlled/in remission from the standpoint of their rheumatologic disease. Three (19%) patients had flares of their rheumatologic disease after treatment for the following cancers as noted: Patient 1 - temporal arteritis – nivolumab - non-small cell lung cancer, Patient 2 - Sjogren's (severe sicca)– pembrolizumab - melanoma, and Patient 3 - spondylitis-ipilimumab/pembrolizumab combination –melanoma. All flares responded to steroids or supportive therapy. Checkpoint inhibitor therapy was discontinued in all three patients for the following reasons: Patient 1 – flare of temporal arteritis, Patients 2 & 3 – cancer progression.
Conclusions: To our knowledge, we have identified the largest cohort (16) of patients from a single academic with preexisting rheumatologic disease who had been exposed to checkpoint inhibitor therapy for advanced malignancy. Of these patients, only a minority experienced a flare of their disease during cancer treatment, and responded to standard therapies. With close monitoring and in the appropriate clinical context, checkpoint inhibitor therapies should be considered and made available to patients with preexisting rheumatologic disease who develop advanced malignancies.
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SAT0712 SELF-REPORTED SEDENTARY BEHAVIOUR IS ADVERSELY ASSOCIATED WITH MICROVASCULAR ENDOTHELIAL FUNCTION IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: Patients with Rheumatoid Arthritis (RA) are at increased risk for cardiovascular disease (CVD). Research suggests impaired vascular function contributes to this heightened risk. At present, little is known regarding factors associated with vascular function in RA. Epidemiological evidence demonstrates sedentary behaviour (i.e., waking behaviour $\leq$1.5 metabolic equivalents whilst sitting or lying), to be adversely linked to CVD risk in the general population. Whilst the biological processes underlying this relationship are not understood, vascular dysfunction may play a role (1, 2). However, research is yet to examine the association between sedentary behaviour and vascular function in healthy adults and/or clinical populations. Studies investigating this relationship in RA, will help to determine the extent to which sedentary behaviour may represent a modifiable risk factor for CVD in these patients.
Objectives: To investigate the cross-sectional associations between sedentary behaviour and microvascular and large vessel endothelial function among patients with RA.
Methods: Fifty-three patients with RA participated in the study (*M* age=52.9±12.8, 72% female). Laser Doppler imaging with iontophoresis was used to assess microvascular endothelium-dependent (acetylcholine, ACh) and endothelium-independent (sodium nitroprusside, SNP) function. Large vessel endothelium-dependent and endothelium-independent functions were measured via flow-mediated dilation (FMD) and glyceryl trinitrate dilation (GTN), respectively. Sedentary behaviour was self-reported via the International Physical Activity Questionnaire (hours/week sitting). Data were analysed using multiple linear regressions adjusted for traditional CVD risk factors; age, gender, total cholesterol, smoking status, family history of CVD, hypertension and body-mass-index.
Results: Sitting time (hours/week, M =39.2±17.9) was significantly negatively related to % increase in perfusion in response to ACh (β=–0.30, $p<0.05$) and SNP (β=–0.37, $p<0.01$) after adjustment for traditional CVD risk factors. Sitting time accounted for 8% and 12% of the variance in microvascular endothelium-dependent function (ACh) and endothelium-independent function (SNP), respectively (traditional CVD risk factors, R^2=0.3). No significant associations were observed between self-reported sitting time and large vessel endothelium-dependent vasodilation (FMD, β=0.16, p=0.29) or independent vasodilation (GTN, β=–0.08, p=0.55).
Conclusions: Sedentary behaviour appears to adversely affect microvascular endothelial function, but not large vessel function in patients with RA. It may therefore represent a modifiable risk factor for CVD in this population. Experimental studies employing objective measures of sedentary behaviour are necessary to confirm these findings, and to determine the utility of sedentary behaviour interventions for improving vascular function and reducing CVD risk in RA.
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SAT0713 SURVEY ON PREVALENCE OF RHEUMATIC DISORDERS IN BANGLADESHI ADULTS

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Background: From Community based COPCORD (community oriented program for control of rheumatic diseases) study in Bangladesh about a quarter of people is suffering from musculoskeletal disorders. But the study was conducted over a small number of samples and some specific localities of the country. So further study was required, covering the whole Bangladesh to justify this high prevalence.
Objectives: To determine the prevalence of musculoskeletal symptoms and specific rheumatic disorders in adult population of Bangladesh.
Methods: In this survey, a total of 2000 individuals aged 18 years or older were selected in twenty clusters (primary sample unit) from the seven divisions of the country. Modified COPCORD (Community Oriented Program for Control of Rheumatic Disorders) questionnaire was used to detect positive respondents. Standard criteria were used for diagnosing rheumatic disorders. Clinical judgment was used to solve diagnostic problems.
Results: In total 1843 individuals were interviewed with a response rate of 92.1%. The point prevalence of musculoskeletal pain was 33.7%. It was higher in women (38.7%) than men (28.4%) and higher in rural (34.5%) than that in urban (32.4%) areas. Higher prevalence rates were observed in homemakers (16.0%), laborers

(3.0%), business professionals (2.9%) and cultivators (2.8%). Low back (23.3%), knee (12.7%) and shoulder (6.1%) were the most frequent site of complaint. Non specific low back pain (12.7%) and knee osteoarthritis (7.3%) were the two top ranking disorders. The prevalence of rheumatoid arthritis was 1.6% and spondyloarthritis 1.2%. 5.5% of the respondents had disability from rheumatic problems.
Conclusions: About one third of the Bangladeshi adults suffer from musculoskeletal pain at a given point of time. There are residence and gender variation in the prevalence rates. Low back and knee pain were the principal sites of complaints.
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SAT0714 INCREASED RISK OF OPPORTUNISTIC INFECTION IN THE EARLY STAGE OF RHEUMATOID ARTHRITIS

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Background: The increased risk of opportunistic infections (OIs) in rheumatoid arthritis (RA) patients who started biologic disease modifying anti-rheumatic drugs (DMARDs) has been well known. However, it has not been studied regarding the increased risk of OIs in the early stage of RA.
Objectives: To study the increased risk of incidence rate (IR) of OIs in early RA patients compared with established RA patients, and to evaluate the risk factors for developing the OIs in the early stage of RA.
Methods: Retrospective cohorts of early and established RA patients were conducted independently using the Korean National Healthcare claims database. Early RA patients (n=14,081) were identified in 2010 having disease free period for 1 year before index date, and receiving continuous treatment for over three years. Established RA patients (n=226,838) were recruited between 2010 and 2012 with using the ICD10 code of RA and any DMARD use. Follow-up started on the index date and ended on the data of the development of OIs, at 12 months, or at the time of death. The incidence rates of OIs were compared between two groups by calculating incidence rates ratio (IRR) and standardized incidence ratio (SIR) for overall or each OIs. The multivariable regression model was used to evaluate the risk factors for OIs in the early stage of RA.

Table 1

Type of opportunistic infection	Established RA N=226,838		Early RA N=14,081		SIR comparing early RA patients with established RA patients	
	IR/100PY	95% CI	IR/100PY	95% CI	SIR	95% CI
Total	3.67	3.59–3.74	3.81	3.52–4.11	1.14	1.05–1.23
Tuberculosis	0.71	0.67–0.75	0.70	0.54–0.87	1.06	0.82–1.33
Herpes zoster	2.79	2.72–2.85	2.89	2.64–3.13	1.12	1.03–1.22
Cytomegalovirus	0.02	0.02–0.03	0.03	0.00–0.06	0.98	0.20–2.86
Epstein–Barr virus	0.01	0.00–0.01	0.04	0.00–0.07	3.54	0.96–9.06
Pneumocystis jiroveci pneumonia (PJP)	0.01	0.01 - 0.02	0.02	-0.01–0.04	1.20	0.15–4.34
Candidiasis	0.10	0.08–0.11	0.11	0.07–0.16	2.40	1.55–3.54
Aspergillosis	0.02	0.02–0.03	0.02	0.00–0.05	0.84	0.17–2.47
Cryptococcosis	0.01	0.00–0.01	0.01	-0.01–0.02	1.15	0.03–6.39

RA = rheumatoid arthritis, SIR = standardized incidence ratio, PY = person year, N = number, IR = incidence rate, CI = confidence interval.

Results: The IRs of overall OI in early and established RA patients were 3.81 (95% CI 3.52–4.11)/100PY and 3.67 (95% CI, 3.59–3.74)/100PY, respectively. The SIR for overall OIs in early RA patients was 1.14 (95% CI, 1.05–1.23). The herpes zoster (SIR 1.12, 95% CI 1.03–1.22) and candidiasis (SIR 2.40; 95% CI 1.55–3.54) were commonly affected in the early stage of RA patients. Older age more than 50 years old [50<age≤60 (OR 1.74, 95% CI 1.30–2.33), 60<age≤70 (OR 1.85, 95% CI 1.36–2.52), 70<age (OR 1.89, 95% CI 1.34–2.68)], more comorbidities [one comorbidities (OR 1.53, 95% CI 1.24–1.89), ≥2 of comorbidities (OR 1.84, 95% CI 1.47–2.29)], and corticosteroid ≥5mg per day (OR 1.38, 95% CI 1.13–1.69) were associated with increased risk of OIs in the early stage of RA patients.
Conclusions: The incidence of OIs is increased in early stage of RA patients compared with established RA patients. Old age, comorbidities, high corticosteroid dose were related with the development of OI. Physicians should be aware of the possible occurrence of OIs in early stage of RA treatment.
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SAT0715 CLINICAL SIGNIFICANCE OF FIBROMYALGIA SYNDROME IN DIFFERENT RHEUMATIC DISEASES: RELATION TO DISEASE ACTIVITY AND QUALITY OF LIFE

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Background: In clinical practice, the co-expression of fibromyalgia syndrome (FMS) and a rheumatologic disease deserves special attention as FMS may go unrecognized especially when it develops after the disease or more commonly when it is misdiagnosed as an autoimmune disorder.
Objectives: The aim of the present work was to compare the frequency of FMS in rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), systemic sclerosis (SSc) and Behçets disease (BD) patients and to study the relation of FMS to the clinical manifestations, laboratory features, disease activity and/or damage as well as the quality of life (QoL).
Methods: One hundred and sixty patients (50 RA, 50 SLE, 30 SSc and 30 BD) consequently recruited from those attending the Rheumatology outpatient clinic and department, Faculty of Medicine, Cairo University Hospital. and 141 age and sex matched corresponding healthy controls were included. Disease activity was assessed using Disease Activity Score in 28 joints (DAS28) for RA, SLE Disease Activity index (SLEDAI), modified Rodnan skin score for SSc and BD Current Activity Form (BDCAF). The Systemic Lupus International Collaborating Clinics (SLICC)/ACR damage index was assessed in SLE patients. The quality of life (QoL) was also recorded. Severity in FMS cases was estimated using the revised Fibromyalgia Impact Questionnaire (FIQ) score.
Results: In the RA, SLE, SSc and BD patients, FMS was found in 14%, 18%, 6.67% and 3.33% respectively compared to 2.1%, 3%, 3.3% and 0% in their corresponding controls. In RA patients, DAS28 was significantly higher in those with FMS (5.5±0.9) compared to those without (4.3±1.3) (p=0.009); significantly correlated with both Widespread Pain Index (WPI) (p=0.011) and Symptom Severity (SS) scale (p=0.012) and the QoL scale in those with FMS was significantly worse (62.3±7.9) compared to those without (71.7±14.4) (p=0.023). In SLE patients, The WPI and SS both significantly correlated with the presence of thrombosis (r=0.28, p=0.049 and r=0.43, p=0.002 respectively). The SS scale tended to correlate with the SLEDAI (r=0.28, p=0.05). In BD patients, BDCAF and WPI significantly correlated (p=0.03). On comparing the WPI among the rheumatic diseases patients, the mean was significantly higher in the SLE patients (2.3±3.2) compared to that in the RA (1.96±2.6), SSc (1.9±2.2) and BD (0.7±1.1) patients (p=0.047).
Conclusions: Fibromyalgia syndrome is more frequent in rheumatic diseases. The significance of this study is boosted by the fact that it was among the first to investigate the prevalence of FMS in patients with SSc. Also, adds to the limited insights on the relation of FMS to BD. It is novel to present the relative prevalence of FMS in different Egyptian rheumatic diseases patients and to throw light on the association with disease activity in RA and BD as well as thrombosis in SLE. The impact of FMS on the QoL in RA patients requires special attention.
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SAT0716 A FIRST TIME HOSPITAL ADMISSION FOR COMORBID CONDITIONS IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS IS MORE FREQUENTLY DUE TO CARDIOVASCULAR AND RENAL COMPLICATIONS THAN IN CONTROLS AND SUBSEQUENTLY INCREASES THE RISK FOR DEATH

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Background: Systemic Lupus Erythematosus (SLE) is a chronic autoimmune disease that runs an unpredictable disease course.
Objectives: We aimed to understand the characteristics and outcomes of incident hospitalisation for conditions other than the underlying disease in SLE patients.
Methods: Using whole-population data linkage of hospital admissions and death records in Western Australia (WA) WA between 1980 and 2015, we performed a retrospective analysis for patients where SLE (ICD-9-CM 695.4, 710.0 and ICD-10-AM L93.0 & M32) was a *co-existing* discharge diagnosis. All SLE patients were age- and gender-matched with hospital controls free of rheumatic disease. We investigated the rate and characteristics of the index hospitalisation for comorbidity and the risk of subsequent death by Kaplan-Meier survival and Cox regression.

Table 1: Patient Characteristics (at index hospitalisation) and study outcomes.

	Lupus was secondary to the Admitting Diagnosis	Matched Controls	χ2 or t-test
	MoCT or n(%)	MoCT or n(%)	(p-value)
Age	54.31 ± 18.76	54.32 ± 22.13	0.120
Female	1911 (82.3%)	1755 (82.8%)	0.210
Indigenous Status	82 (3.5%)	26 (1.2%)	<0.001
Length of Stay (days)	5 (IQR 2, 11)	2 (IQR 1, 5)	<0.001
Privately Insured	438 (35.4%)	469 (48.8%)	<0.001
Diagnosed with an Ischaemic Heart Disorder	184 (7.9%)	73 (3.4%)	<0.001
Diagnosed with a Cerebral Ischaemic Disorder	33 (1.4%)	18 (0.8%)	0.074
Diagnosed with a Hypertension Disorder	348 (15.0%)	136 (6.4%)	<0.001
Diagnosed with an Atherosclerotic Disorder	158 (6.8%)	19 (0.9%)	<0.001
Diagnosed with a Kidney Disorder	295 (12.7%)	39 (1.8%)	<0.001
Diagnosed with a Thrombotic Disorder	54 (2.3%)	4 (0.2%)	<0.001
Patient died during the hospital admission	87 (3.7%)	40 (1.9%)	<0.001

MoCT: Measure of Central Tendency, i.e. mean ± standard deviation or median (interquartile range).