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Ahmed Zayat[1], Mohammed Omair[2], Maryam Al-Nesf[3], Martin Lee[4], Zaki Abou Zaher[5], Rajaie Namas[6], Mahmood Al Mashhadani[7], Fahdah AlOkaily[8], Suad Hannawi[9]

[1]University Hospital Sharjah, University of Sharjah, Sharjah, United Arab Emirates
[2]King Saud University, Riyadh, Kingdom of Saudia Arabia
[3]Mediclinic City Hospital, Dubai, United Arab Emirates
[4]Hamad Medical Corporation, Doha, Qatar
[5]Healthpoint hospital, Abu Dhabi, United Arab Emirate
[6]Cleveland Clinic, Abu Dhabi, United Arab Emirates
[7]Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirate
[8]Prince Sultan Riyadh Military Medical City, Riyadh, Kingdom of Saudi Arabia
[9]Emirates Health Services, Ministry of Health and Prevention of United Arab Emirate

Introduction

The Gulf Cooperation Council (GCC) Association of Immunology and Rheumatology (GCC-AIR) held its second international conference in Dubai in the period between 9-11th December 2022. Following the main objectives of the GCC-AIR including enhancing advance research and training to improve the health of people with rheumatic and related diseases and enhance research environment. The conference accepted abstracts in 3 categories including: I) health professionals in rheumatology practice and clinical care; II) clinical research; and III) basic and translational research. The abstract committee recived 36 abstarcts including (19 original research, 14 case reports, 2 systematic/literature reviews, and one audit) from 9 countries in the region from which 27 abstracts where accepted. In this article, the abstracts were grouped in 3 categories: I) originial research; II) case reports/case series; and III) health professionals in rheumatology practice and clinical care. The abstracts are listed according to their categories:

Meeting Highlights

Category: Original Research

MRC2022-A-1043

A comparison between the retention rate and side effects profile of 2 JAK inhibitors in Emirati patients: a retrospective real-world evidence study

[1]Entesar N. Etrug, [2]Ahmed S. Zayat

[1]University Hospital Sharjah, [2]University Of Sharjah, Sharjah, United Arab Emirates

Background: JAK inhibitors have an increasing role in treating different arthropathies and provide an oral targeted synthetic effective therapeutic option in moderate to severe rheumatoid, psoriatic arthritis, and ankylosing

spondylitis. The role of selectivity of different JAK on efficacy and drug retention is yet unknown and side effects profile among Arabs and other ethnic group in UAE is still unreported. The objective was to assess the differences in retention rate among different JAKs and the profile of side effects reported by Emirati and non-Emirati patients.

Methods: We used registry data of patients at Sharjah University hospital to carry out a retrospective analysis of electronic patients records (EPR) receiving JAK inhibitors over the last 3 years. Descriptive analysis was carried out to assess retention rates, reported side effects, and other co-morbidities and events occurred after the initiation.

Results: A total of 40 patients received either baricitinib or upadacitinib (Figure 1). The mean age was 62 (range: 30-82) years for barcitinib and 57 (30-92) years upadacitinib and 90% were females. Approximately 92.5% of the patients were Emirati and the remaining 7.5% were Arabs of different nationalities (Table 1.1). The retention rate for baricitinib was 47% while for upadacitinib was 40%. There were more patients sustaining remission (88%) on baricitinib in comparison of that on upadacitinib (44%). However, there were more patients who started barcitinib as b-DMARD naïve (82%) than upadacitinib (46%). The reason for discontinuation was primary failure in 34% in both drugs. Among those who discontinued the drugs 22% of patients discontinued baricitinib and 33% of patient discontinued upadactinib for secondary failure, while 33% stopped baricitinib and 25% stopped upadactinib because of side effects (Table 1.2). Although 75% of patients were ≥50 years and 35% were ≥65 years old where 22.5% had ≥1 cardiovascular risk factor but no one sustained MACE or VTE. Only one patient had

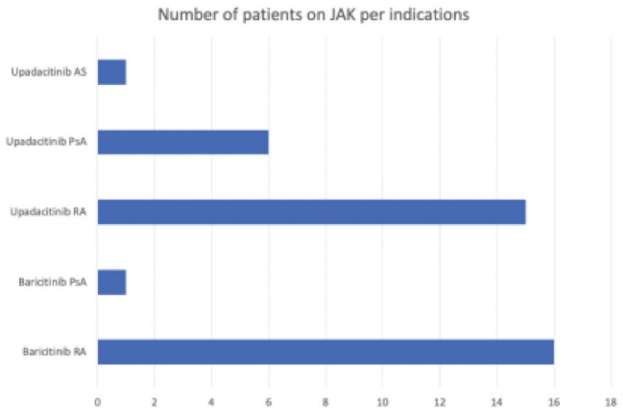

Figure 1 - Frequency of JAK prescription per diagnosis.

Table 1.1 - Differences in the characteristics between patients receiving the 2 JAK inhibitors.

Characteristics	Baricitinib	Upadacitinib
Mean age (range) years	62 (30-82)	57 (30-92)
DAS 28 CRP remission (total)	41.0%	19.0%
DAS 28 CRP remission (current)	88.0%	44.0%
Boolean response % (total)	41.0%	9.0%
Boolean response % (current)	88.0%	22.0%
Mean (range) time before stop (months)	10.1 (3-24)	4.6 (2-9)
Mean (range) time on drug	21 (16-32)	10.1 (4-20)
Biological-DMARDs naive	82.0%	46.0%
Biological-DMARDs failure	18.0%	54.0%
Age >50	88.0%	68.0%
% of ≥2 CV risk in >50	29.0%	9.0%

Table 1.2 - Side effects reported the cohort of patients receiving JAK inhibitors.

Side effects	Baricitinib	Upadacitinib
Herpes Zoster	1	1
VTE	0	1
MAC	0	0
Sepsis	1	1
Transaminitis	0	1
Others	1 gastritis	1 hair loss, 1 acne
Total	3 (17.0%)	6 (27.0%)

arterial thromboembolism on upadacitinib with risk factors of obesity and >65 years old. Herpes Zoster occurred in one patient only in each group (5.8% of baricitinib and 4.5% of upadactinib) and all were >60 years old. Generally, there were more side effects reported with upadacitinib 6 (27%) versus 3 (17%) in baricitinib.

Conclusion: There was good retention rate and frequency of patients achieving remission on JAK inhibitors with some differences noted which could be linked to the line of therapies given and background diagnosis. The profile of side effects was similar to what have been reported by previous phase 3 clinical trials. There was no MACE/VTE in Emiratis in this cohort even with older ages and cardiovascular risk factor. However, larger number and multicenter registry data will be required to draw conclusions.

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Incidence of skin hyperpigmentation secondary to hydroxychloroquine in Emirati SLE patients, monocentric retrospective cohort study

Hiba I. Khogali

Tawam Hospital, Al Ain, United Arab Emirates

Abstract title: Incidence of skin hyperpigmentation secondary to HCQ in Emirati SLE patients, monocentric retrospective cohort study

Background: A retrospective observational study to assess the incidence of skin hyperpigmentation secondary to treatment with hydroxychloroquine (HCQ) in systemic lupus erythematous (SLE) Emirati patients attending a rheumatology clinic in Tawam hospital, Al Ain, UAE.

Methods: This study was carried out retrospectively using electric chart records at Tawam Hospital - Rheumatology service between January 2010 until June 2019. All patients fulfil the diagnostic criteria of ACR/SILCC 2012 (at least 6-7 out of 11 criteria) (Table 1). Data was collected from patients who received HCQ (400 mg once daily for at least 3 months and had no other causes of hyperpigmentation, such as medications, dermatological diseases, nutrition deficiencies, or endocrinopathies). The reporting of skin hyperpigmentation was observed and documented by patient, family member, or treating physician and confirmed by treating rheumatologist. Statistical analysis was carried out using the Statistical Package for the Social Sciences software.

Results: A total of 120 cases of SLE patients (109 females and 11 males) were observed over a period of 9 years, with 31 (25.83%) cases of HCQ-induced hyperpigmentation (30 females and one male). All 31 (100%) patients were UAE nationals, with a mean age of 26 years (range: 16-36 years) and mean duration of treatment with HCQ of 16.5 (range: 3-24) months. Majority of the patients affected with hyperpigmentation 27 (87.09%) were dark-skinned. The overall disease activity score SLEDAI ranged from mild to moderate (5-7).
Most affected areas were the face predominantly (the front & cheeks), hands, upper back, and submandibular area (Figure 1). The HCQ therapy was withdrawn in 30 (96.77%) patients and the dose was reduced to 200 mg/day in one (3.22%) patient. Discontinuation of HCQ resulted in partial improvement of hyperpigmentation in 26 (83.87%) patients and complete resolution in 3 (9.67%) patients and non-resolution in one (3.22%) patient.

Conclusion: In our study the incidence of skin hyperpigmentation in SLE patients on HCQ treatment was 25.83% which is more frequent than other Gulf countries. In our study hyperpigmentation affects proximal body parts sparing lower limbs. The patient's skin complexion should be taken into consideration while prescribing HCQ for SLE in future. Discontinuation or reduction of the dose does not help hyperpigmentation in improvement.

Table 1 - Characteristics of patients with SLE and HCQ-induced hyperpigmentation.

Characteristics	n (%)
ANA	31 (100)
dsDNA	31 (100)
Low complements (C3 and C4)	31 (100)
Arthritis (MCPs, wrists, and knees)	16 (51.6)
Leucopenia (<3000×10^9/L)	31 (100)
Thrombocytopenia (<100,000×10^9/L)	8 (25.8)
Painful mouth ulcers	10 (32.2)
Fatigue	31 (100)
Photosensitivity (acute/chronic)	29 (93.5)

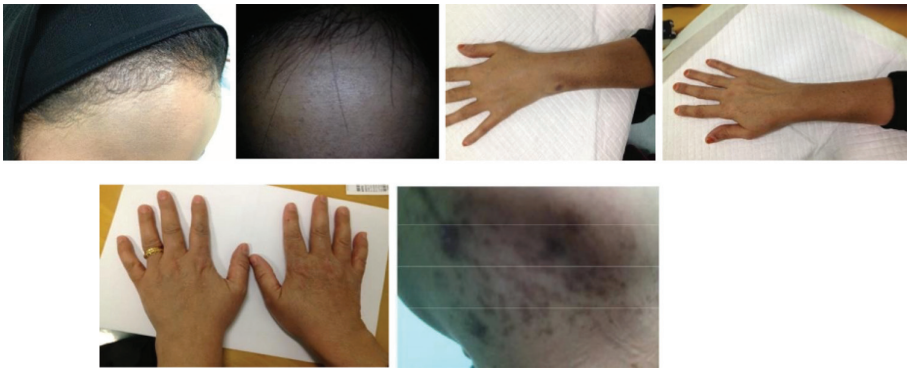

Figure 1 - Most affected areas of patients with SLE and HCQ-induced hyperpigmentation (the face predominantly [the front & cheeks], hands, upper back, and submandibular area).

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Immunoglobulin monitoring after B-cell therapy in a tertiary pediatric hospital

Omar Mostafa, Ahmad Kaddourah, Sharon Bout-Tabaku, Mohammed Y. Karim

Sidra Medicine, Doha, Qatar

HIGHLIGHTS FROM MIDDLE EAST RHEUMATOLOGY CONFERENCE

Background: Hypogammaglobulinemia is an under-recognized complication of B-cell targeted therapies (BCTT) in both autoimmune diseases (AID) and malignancy. Hypogammaglobulinemia may be transient or persistent, and may be associated with increased infection risk. While in 2019 and 2021, guidance was published for hypogammaglobulinemia in patients receiving BCTT, the majority of the primary literature quoted in these guidance articles is based on adult studies. Here we describe immunoglobulin (Ig) monitoring in our pediatric cohort receiving BCTT. We audited our practice as per the 2019 and 2021 guidance.

Methods: We retrospectively screened for all patients, including both AID and malignancy, who had received BCTT at Sidra Medicine, the main pediatric tertiary center in Qatar, between 2016-2022. Patients were identified from an audit of Pharmacy records. The frequency of Ig testing and measurements were extracted from the electronic medical records. Frequency of hypogammaglobulinemia and the need for immunoglobulin replacement (IGRT) were noted. These findings were audited against the monitoring guidance in the 2019 and 2021 publications.

Results: A total of 57 patients were included in the study: nephrotic syndrome 28, SLE 12, other rheumatological diseases 6, neurological diseases 6, malignancy 5. Pre-BCTT Ig results were available in 49/57 patients (85.9%), of which 13/49 (26.5%) had low IgG levels. During follow-up, 3/13 patients remained low, 6/13 normalized, and 4/13 did not have Ig's repeated. Overall 39/57 (68.4%) patients had Ig testing after BCTT. The range was between 1-10 Ig measurements per patient over a follow-up duration of 1-36 months. A total of 16/39 (41%) patients developed low Ig's, of which 2 were transient; one SLE patient developed low Ig's after only a single BCTT cycle, subsequent investigations suggesting CVID. However no patients required initiation of IGRT.

Conclusion: Baseline Ig measurements were almost always carried out per the guidance, and indeed baseline Ig's were abnormal in 26.5% patients. This confirms the importance of the baseline timepoint, whereby low baseline levels could be disease-related or due to other medications. Otherwise low Ig's during follow-up might be incorrectly attributed to BCTT. However monitoring of immunoglobulins was less strictly followed compared with the guidance, with 68.4% patients having immunoglobulins measured post-BCTT. The importance of monitoring is demonstrated by the unmasking of common variable immunodeficiency in an SLE patient after a solitary BCTT cycle. Development of hypogammaglobulinemia did not by itself require IGRT, in the absence of recurrent infections.

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Outcome of pregnancy in women with rheumatological diseases, single center experience

[1]Abeer Alkhodier, [2]Abdurhman Alsaif, [2,3]Rakan Alanazi, [4]Norah Alqntash, [1]Ghaida Alotaibi, [5]Abdulrahman Alrashid

[1]College of Medicine, King Saud University, [2]College of Medicine, King Saud Bin Abdulaziz University For Health Sciences, Ministry of the National Guard Health Affairs, [3]King Abdullah International Medical Research Center, Ministry of the National Guard - Health Affairs, [4]College of Medicine, Princess Nourah Bint Abdulrahman University, [5]King Abdulaziz Medical City, King Saud Bin Abdulaziz University for Health Sciences, Riyadh, Kingdom of Saudi Arabia

HIGHLIGHTS FROM MIDDLE EAST RHEUMATOLOGY CONFERENCE

Background: Rheumatic diseases are a broad spectrum of disorders that involve many tissues; they are considered challenging during early stages as they present with nonspecific symptoms. The impact of these diseases on the pregnancy will add further burden on the patient, fetus, physician, and healthcare system.

Methods: A retrospective cohort study was carried out in King Abdulaziz Medical City in Riyadh, Saudi Arabia, to compare the outcomes of pregnancy across 3 rheumatological diseases: Sjogren syndrome (SS), lupus erythematosus (SLE), and rheumatoid arthritis (RA) from 2016-2021. A total of 128 pregnancies in 107 women with rheumatological diseases were included in this study.

Results: There were 44 patients with SLE, 55 with RA, and 8 with primary SS. Most of the patients were in clinical remission before pregnancy. Anti-SSA was positive in 41 patients. Most of the patients in our study had no comorbidities 61 (47.66%). A total of 8 (18.18%) of SLE patients were found to have lupus nephritis, which was in remission before pregnancy. A total of 63 patients had a previous abortion, and the majority 42 (64.62%) happened once. Vaginal delivery was the most common mode of delivery. On the other hand, C-sections were 38 (29.69%). Postpartum complications (namely, infection and bleeding) were noted in 12 (9.38%) pregnancies, and complications during pregnancy were found in 29 (22.66%). Rheumatological disease flares occurred in 10 (7.87%) pregnancies.
Out of the 122 babies delivered, 52 were male newborns and 72 were female newborns. Preterm delivery occurred in 25 (20.83%) pregnancies, and 16 (13.22%) of the newborns needed NICU care.
Interestingly, congenital heart block (CHB) was found in 5 (12.2%) neonates out of 41 anti-SSA positive mothers; one out of those 5 died from heart block. A total of 11 neonates were delivered with positive serology, and 5 of them were diagnosed as infantile lupus. Few flare-ups in RA patients were reported during pregnancy or postpartum; nonetheless, they were not statistically significant (p=0.22).

Conclusion: The outcome of pregnancy in patients with rheumatological disease is favorable. Multidisciplinary team approach and close clinical follow up is the cornerstone for such success. Small dose of prednisolone is safe and will not have a negative impact on maternal or fetal health. The CHB is a concern for pregnant women with positive anti-SSA.

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Outcomes of COVID-19 in inflammatory rheumatic diseases: a retrospective cohort study

[1]Thamer Alhowaish, [1]Thamer S. Alhowaish, [1]Abdulrahman Y. Alhabeeb, [1]Shaya F. Aldosari, [2]Emad Masuadi, [3]Abdulrahman Alrashid

[1]College of Medicine, King Saud Bin Abdulaziz University For Health Sciences, Riyadh, Saudi Arabia, [2]King Abdullah International Medical Research Centre, Ministry of the National Guard Health Affairs, [3]Department of Medicine, Division of Rheumatology, Ministry of National Guard Health Affairs, Riyadh, Saudi Arabia

Background: Similar to coronavirus disease-2019 (COVID-19), the pathogenesis of inflammatory rheumatic diseases includes cytokines dysregulation and increased expression of pro-inflammatory cytokines. Although current data from international studies suggest that rheumatic diseases are associated with a higher risk of COVID-19

infection and worse outcomes, there is limited literature in Saudi Arabia. This study aims to evaluate the outcomes and length of hospital stay of COVID-19 patients with inflammatory rheumatic diseases in Saudi Arabia.
Methods: This was a single-center retrospective cohort study that included 122 patients with inflammatory rheumatic diseases and documented COVID-19 infection from 2019-2021. Patients with suspected COVID-19 infection, non-inflammatory diseases, such as osteoarthritis, or inflammatory diseases but without or with weak systemic involvement, such as gout, were excluded.

Results: The vast majority (81.1%) of the patients were females. Rheumatoid arthritis was the most common primary rheumatological diagnosis. The admission rate was 34.5% with an overall mortality rate of 11.5%. Number of episodes of COVID-19 infection, mechanical ventilation, cytokine storm syndrome, secondary bacterial infection, number of comorbidities, rituximab, diabetes mellitus, hypertension, chronic kidney disease, and heart failure were significantly associated with a longer hospital stay. Additionally, hypertension, heart failure, rituximab, mechanical ventilation, cytokine storm syndrome, and secondary bacterial infection were significantly associated with higher mortality. Predictors of longer hospitalization were obesity, number of episodes of COVID-19 infection, mechanical ventilation, number of comorbidities, and chronic kidney disease, whereas, hypertension was the only predictor of mortality.

Conclusion: Obesity, number of episodes of COVID-19 infection, mechanical ventilation, number of comorbidities, and chronic kidney disease were significantly associated with higher odds of longer hospitalization, whereas, hypertension was significantly associated with higher odds of mortality. We recommend that these patients should be prioritized for the COVID-19 vaccine booster doses, and rituximab should be avoided unless its benefit clearly outweighs its risk.

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Susceptibility of COVID-19 infection in association with smoking: a cross sectional study in Kurdistan Iraq

[1]Aryan M. Jalal, [1]Sheelan F. Aref

[1]Kurdistan Board For Medical Specialties, Erbil, Iraq

Background: World Health Organization (WHO) deemed it as a global pandemic of COVID-19 infection on 11 March 2020. Evidence on smoking impacting the disease progression and death in COVID-19 infected patients is still conflicting. Moreover, some studies showed that there was no relation between COVID-19 severity and smoking, whereas other studies reported that smoking was associated with severity and mortality.
Smoking increases the risk of viral and bacterial infection, and it is a putative risk factor for the Middle East respiratory syndrome coronavirus infection. To date, there is no strong evidence that the smokers protected against SARS-CoV-2 infection. Moreover, there is on-going evidence that smokers have worse outcomes than non-smokers after contracting the virus. Objective of the study was to correlate the smoking with the disease severity of COVID-19 infection.

Methods: The study was an observational cross-sectional study. A sample of 1000 of COVID-19 infected patients were carried out in the Iraqi Kurdistan Region; the participants were treated at COVID-19 centres. the patients who confirmed to have COVID-19 infection based on one or more of the followings: real-time polymerase chain reaction (RT-PCR) by nasopharyngeal swab, CT scan of the chest, as well as serological tests were included. Patient's characteristics were obtained including smoking habits. The study lasted from 15 August 2020 to 15 June 2021.

Results: Among 1000 COVID-19 patients, recovery was high in both groups of smokers (92.4%) and nonsmokers (94.2%), over half of the smokers had either severe disease (51.1%) or critical disease (3.3%) compared with 39.3% having severe disease and 2.6% having critical disease among the non-smokers (p=0.015). The highest age group in both smokers and nonsmokers was age 30-50 years, and highest percentage was in nonsmoker age category 30-50 years (41.60%) with a p-value of 0.22, which is not significant.

Conclusion: coronavirus disease-2019 recovery was high in both groups of smokers (92.4%) and nonsmokers (94.2%). Over half of the smokers had either severe disease (51.1%) or critical disease (3.3%) and the highest percentage was age category 30-50 years (41.60%) in nonsmokers.

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Structural thyroid abnormalities is prevalent among rheumatoid arthritis patients with normal biochemical thyroid function

[1,2]Suad Hannawi, [3]Maria Alsalmi, [1]Haifa Hannawi

[1]Emirates Health Services, [2]Ministry of Health and Prevention, [3]Health Science College, United Arab Emirates

Background: Rheumatoid arthritis (RA), is a chronic incapacitating autoimmune disorder affecting multiple joints, that is associated with reduced life expectancy. The prevalence of comorbid conditions with RA varies across different countries from 3-60%. However, certain studies have reported a high prevalence of up to 80% of one or more comorbid conditions. Hence, this study examines the thyroid structure and morphology in clinically normal thyroid function RA patients.

Methods: Rheumatoid arthritis patients were recruited through a specialized rheumatology clinic at the Ministry of Health and prevention of United Arab Emirates (UAE) throughout 2019. Fasting free thyroxine (FT4), free triiodothyronine (FT3), thyroid stimulating hormone (TSH), thyroglobulin level, anti-thyroglobulin antibody, and anti-thyroid peroxidase antibodies (TPO) were assessed in all the participants within the same week of the thyroid ultrasound scanning.

Results: A total of 38 RA patients satisfying ACR/EULAR criteria for diagnosis of RA and no history of thyroid disease were recruited through the main tertiary federal hospital of the Emirates Health Services, Dubai, UAE. None of the patients had a history of renal, or hepatic disorders. None of the female patients were pregnant. The mean age for the participants was 50±14 (range: 21-87) years. The mean level of FT4 was 15.67±2.57 (range: 8.92-21.89, NR: 12-22 pmol/L), FT3 was 4.35±0.76 (range: 2.60-5.57, NR: 4-6.8 pmol/L), TSH was 2.55±1.69

Table 1 - Demography, RA characteristics, and RA disease activity in 38 RA patients.

Demographic details	n (%)
Male:female	3:35*
Mean age (range), years	50 (21-87)
Rheumatoid arthritis characteristics, mean±SD	
Tender joint count (n=53)	20±15
Swollen joint count (n=44)	18±6
Health assessment questionnaire score (maximum disability 24)	3.3±3.5
Physician's global assessment of disease activity (maximum 100)	35±23
Joint pain (VAS, maximum 100)	40±29
Morning stiffness duration (minutes)	120±90
Rheumatoid factor level (IU/ml)	240±433
Disease activity score-28 (4v)	5.0±1.4
Rheumatoid factor positive	30 (79.0)
RA nodules	1(3.0)
Other extra-articular features	0 (0.0)
Comorbidities	
Ever smoking	1 (3.0)
Current smoking	0 (0.0)
Hypertension	9 (31.0)
Diabetes mellitus	4 (11.0)
Hyperlipidemia	7 (18.0)
Other comorbidities	0 (0.0)

Values are presented as numbers and precentages or mean ± standard deviation (SD).
*ratio. RA: rheumatoid arthritis

Table 2 - Ultrasound characteristics of the thyroid gland of the 38 RA patients.

Characteristics	Right lobule	Left lobule
Presence of nodule		
One nodule	8 (21.0)	7 (18.0)
≥3 nodules	7 (18.0)	6 (16.0)
Size of the nodules (mm), mean±SD*	3.53±11.26 to 3.88±12.54	0.57±1.27 to 1.39±4.096
Nature of nodules		
Complex	6 (40.0)	2 (15.0)
Solid	8 (53.0)	9 (70.0)
Cystic nodule	1 (7.0)	2 (15.0)
Nodules borders		
Definite borders	12 (80.0)	11 (85.0)
Irregular borders	3 (20.0)	2 (5.0)
Echotexture		
Heterogenous	4 (10.0)	6 (16.0)
Homogenous	34 (90.0)	32 (84.0)
Vascularity		
hypervascularity	5 (13.0)	6 (16.0)
Macrocalcification	1 (3.0)	5 (13.0)
Microcalcification	0 (0.0)	1 (3.0)

Values are presented as numbers and precentages (%). SD: standrad deviation

(range: 0.09-7.18, NR: 0.27-4.2 mlU/L), antithyroglobulin was 185.35±272 (range: 11-986), thyroglobulin was 98.58±172.67 (range: 2.4-405.4), and mean anti-thyroid peroxidase antibody (TPO Abs) was 16.03±12.05 U/mL (range: 5-44.5, NR: <60 U/mL, Table 1).

Thyroid ultrasound scanning showed the following structural changes: 8 (21%) of the participants had one right lobe nodule and 7 (18%) had 3 or more nodules. The mean size of the nodules ranged from 3.53±11.26 to 3.88±12.54 mm. Out of the right lobe nodules, 6 (40%) were complex, 8 (53%) were solid, and one (7%) was cystic nodules. In 12 (80%) of the nodules, the borders were definite and in 3 (20%) it was irregular borders. A total of 4 (10%) patients had heterogenous right lobe echotexture and 34 (90%) had homogenous echotexture, and 5 (13%) exhibited hypervascularity. There was macrocalcification in one (3%) and there was no microcalcification or cervical lymph node enlargement (Table 2).

In the left lobe: 7 (18%) of the patients had one left lobe nodule and 6 (16%) had 3 or more nodules. The mean size of the nodules ranged from 0.57±1.27 to 1.39±4.096 mm. In 2 (15%) of the participants the nodules were complex, in 2 (15%) were cystic, and in 9 (70%) were solid. In 11 (85%) of the patients, the nodules had definite borders and in 2 (5%) the nodules had irregular borders. A total of 6 (16%) of the patients had heterogenous left lobe echotexture and 32 (84%) had homogenous echotexture. A total of 6 (16 %) of the patients exhibited hypervascularity. There was macrocalcification in 5 (13%), one (3%) had microcalcification, and none had cervical lymph node enlargement (Table 2).

Conclusion: Thyroid structural abnormalities are prevalent among clinically and laboratory-normal RA patients. Structural changes may precede clinical abnormalities. Further studies at a larger scale are needed to confirm our current study findings.

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Rheumatoid arthritis patients' wide profile: clinical characteristics, disease activities, comorbidities, laboratory and subclinical atherosclerosis

[1,2]Suad Hannawi, [3]Maria Alsalmi, [1]Haifa Hannawi

[1]Emirates Health Services, [2]Ministry of Health and Prevention, [3]Health Science College, United Arab Emirates

Background: Rheumatoid arthritis (RA) is a common systemic autoimmune disease characterized by active synovitis and extra-articular manifestation. Rheumatoid arthritis has genetic and environmental predisposing factors which make the characteristics of the disease different among diverse people, unlike genetic background. Very little is known regarding RA among the Arab population of the Gulf Cooperation Council and on subclinical atherosclerosis in RA. Therefore, this paper aimed at looking at the RA clinical features, RA disease activity, comorbidities, laboratory values characteristics, and subclinical atherosclerosis in terms of cIMT and carotid atheroma of RA patients compared to their age-gender matched control subjects among RA patients in the United Arab Emirates (UAE).

Methods: A total of 100 RA patients who fulfilled the ACR/EULAR 2010 criteria for the classification of RA patients and 154 controls were included. Detailed history, physical examination, laboratory investigations, and

Table 1 - Carotid intima media thickness of 100 RA patients and 154 age-gender matched control subjects.

Subclinical atherosclerosis	Controls	RA patients	*P*-values	CI
cIMT (mm), mean±SD	0.56±0.09)	0.60±0.14	0.03	0.56-0.60
Carotid atheroma, n (%)	6 (4.0%)	21 (21.0)	0.00	

Values are presented as mean ± standrad deviation (SD) or numbers and precentages (%). CI: confidence interval, mm: millimeter, cIMT: carotid intima media thickness, RA: rheumatoid arthritis

Table 2 - Demography and comorbidities of 100 RA patients and 154 age-gender matched control subjects.

Variables	Control	RA patients	*P*-values	CI
Participants, n	154	100	-	-
Male:female ration	31 (20.0): 123 (80.0)	16 (16.0): 84 (84.0)	0.41	-
Age (years), mean±SD	49±13	47±16	0.23	47-50
Males mean age (years), mean±SD	52±15	52±19	0.93	47-57
Female mean age (years), mean±SD	49±13	46±15	0.21	46-49
Extra-articular manifestations				
RA nodules	0 (0.0)	5 (5.0)	0.01*	-
Interstitial lung disease	0 (0.0)	7(7.0)	0.00*	-
Raynaud's phenomenon	3 (2.0)	21 (21.0)	0.00*	-
Eye scleritis or uveitis	0 (0.0)	3 (3.0)	0.03*	-
Vasculitis	0 (0.0)	1 (1.0)	0.21	-
Iron deficiency anemia	11 (7.0)	18 (18.0)	0.03*	-
Comorbidities				
Smoking, ever	15 (10.0)	8 (8.0)	0.09	-
DM	21(27.0)	12(12.0)	0.09	-
Hypertension	23 (29.0)	17 (17.0)	0.39	-
Dyslipidemia	24 (36.0)	14 (14.0)	0.01*	-
Sickle cell or thalassemia	2 (1.0)	0 (0.0)	0.25	-
Thyroid disease	7 (4.5)	5 (5.0)	0.65	-
Hyperthyroidism	1 (0.6)	0 (0.0)	-	-
Hypothyroidism	6 (4.0)	5 (5.0)	-	-

Values are presented as numbers and precentages (%) or mean ± standrad deviation (SD). RA: rheumatoid arthritis, CI: confidence interval, DM: diabetes mellitus

Table 3 - Physical examination and weight parameters of 100 RA patients and 154 age-gender matched control subjects.

Parameters	Control	RA patients	*P*-values	CI
Blood pressure				
Sbp (mmHg)	125±17	130±20	0.04	125.04-129.96
Dbp (mmHg)	72±11	76±13	0.04	71.90-75.19
Weight parameters				
Height (cm)	156.02	156.86	0.68	154.39-158.25
Weight (kg)	77.97±20.07	75.24±20.54	0.34	74.07-79.62
Body surface area	4.39±14.27	1.78±26	0.12	1.78-5.01
BMI (kg/Ht [m]^2)	31.54±6.93	29.92±6.30	0.10	29.92-31.84

Values are presented as mean ± standrad deviation (SD). CI: confidence interval, Sbp: systolic blood pressure, Dbp: diastolic blood pressure, BMI: body mass index

Table 4 - Laboratory values of 100 RA patients and 154 age-gender matched control subjects.

Laboratory values	Controls	RA patients	*P*-values	CI
Antibodies profile				
ANA, n (%)	7 (4.5)	8 (8.0)	0.29	-
RF positivity, n (%)	4 (3.0)	72 (72.0)	0.00*	-
RF level	8.48±8.06	50.61±115.22	0.00*	14.65-41.25
Anti-CCP level, n (%)	0 (0.0)	46 (46.0)	0.00*	-
Thyroid function test				
FT4 (pmol/L)	15.59±3.61	15.557±2.63	0.94	15.11-16.05
FT3 (pmol/L)	4.57±1.04	4.36±0.817	0.24	4.31-4.67
TSH (mlU/L)	2.02±1.56	2.98±4.48	0.03*	1.96-2.84
Thyroglobulin	29.13±38.08	56.53±118.65	0.21	17.29-57.83
TPO	135.47±303.37	47.92±75.29	0.14	52.21-161.72
Blood rheology				
RBC (10(6)/mcL)	4.70±0.51	4.54±0.61	0.04*	4.56-4.71
Hb (g/dl)	12.49±1.61	12.26±1.44	0.28	12.19-12.61
HCT (%)	38.36±4.65	37.78±4.13	0.33	37.53-38.72
MCV(fL)	82.35±9.29	84.51±8.03	0.07	82.06-84.45
MCH (pg)	27.22±4.86	27.36±3.09	0.80	26.71-27.84
MCHC (g/dL)	32.37±1.78	32.33±1.19	0.84	32.15-32.57
RDW	14.34±2.29	14.93±2.79	0.09	14.24-14.93
Plt (10^3/mcL)	262.35±70.93	287.64±87.63	0.02*	262.47-283.75
MPV	9.42±1.44	8.67±1.23	0.00*	8.91-9.29
WCC (10^3/mcL)	6.83±1.91	8.21±3.29	0.00*	7.06-7.78
Neutrophil count (%)	53.78±11.78	58.31±12.39	0.01*	54.06-57.34
Neutrophil absolute (10^3/mcL)	3.76±1.74	4.96±2.58	0.00*	3.97-4.56
Lymphocyte count (%)	35.27±10.19	31.57±10.88	0.01*	32.28-35.13
Lymphocyte absolute (10^3/mcL)	2.32±0.68	2.41±0.947	0.36	2.25-2.47
Monocyte count (%)	7.42±3.14	7.12±1.90	0.43	6.93-7.66
Monocyte absolute (10^3/mcL)	0.51±0.21	0.58±0.23	0.02*	0.51-0.57
Eosinophil count (%)	0.19±0.13	0.19±0.13	0.92	0.17-0.21
Eosinophil absolute (10^3/mcL)	0.19±0.13	0.21±0.16	0.65	0.18-0.22
Basophil count (%)	0.49±0.38	0.44±0.31	0.26	0.43-0.52
Basophil absolute (10^3/mcL)	0.03±0.04	0.04±0.03	0.52	0.03-0.04
Inflammatory markers				
ESR (mm/hr)	23.78±17.53	32.75±25.66	0.00*	24.69-30.57
CRP (mg/dl)	4.81±6.59	16.66±34.09	0.00*	6.68-13.17
Renal function				
Creatinine (mmol/L)	61.10±34.69	60.08±22.94	0.80	56.58-64.76
Urea (mmol/L)	4.88±6.26	4.01±1.69	0.20	3.86-5.18
Uric acid (µmol/L)	290.56±90.69	265.74±106.62	0.07	266.45-293.29
eGFR (ml/min)	96.70±11.67	86.71±28.64	0.25	85.25-101.79
Urine microalbumin level	21.12±110.05	4.87±17.79	0.25	-2.22, 25.32

Values are presented as mean ± standrad deviation (SD).*P-value of <0.05. RA: rheumatoid arthritis, CI: confidence interval, ANA: antinuclear antibodies, anti-DNAase: anti-double strand antibodies, RF: rheumatoid factor, anti-CCP: anti-citrullinated peptide, ASMA: anti-smooth muscles antibody, anti Scl 70: anti-scleroderma 70, anti-RNP: anti-ribonuclear protein, anti-Sm: anti Smith antibody, FT: free thyroxine, Ft3: free triiodothyronine, TPO: thyroid peroxidase, RBC: red blood cells (10^6/mcL), Hb: hemoglobin (g/dl), Hct: hematocrit, MCV: mean cell volume (fL), MCH: mean cell hemoglobin (pg), MCHC: mean cell hemoglobin concentration (32-36 g/dL), RDW: red cell distribution width, Plt: platelet (10^3/mcL), MPV: mean platelet volume (9.4-12.3 fL), WCC: white cell counts (10^3/mcL), ESR: erythrocytes sedimentation rate (mm/min), CRP: C-reactive protein (mg/dl), eGFR: estimated glomerular filtration rate (ml/min), HbA1C: glycosylated hemoglobin (mmol/mol), ALT; alanine transferase (IU/L), HDL: high density, LDL: low density lipoprotein (mmol/L)

Table 4 - Laboratory values of 100 RA patients and 154 age-gender matched control subjects. Continuatuin

Laboratory values	Controls	RA patients	*P*-values	CI
Glucose status				
Glucose fasting (mmol/L)	5.96±1.52	6.93±4.71	0.04*	5.89-6.82
HbA1C (mmol/mol)	6.20±1.14	6.76±1.85	0.03*	6.14-6.65
Liver function test				
Total protein	74.62±5.79	72.65±6.20	0.02*	72.96-74.63
Albumin	39.91±4.73	38.48±4.71	0.03*	38.65-39.96
Bilirubin (total)	10.65±7.41	9.89±4.68	0.40	9.45-11.21
ALT	26.30±22.26	23.08±16.04	0.25	22.19-27.67
Alkaline phosphatase	72.85±24.18	71±21.79	0.57	68.86-75.26
Electrolytes				
Calcium	2.32±0.13	2.29±0.12	0.25	2.29-2.33
Phosphates	1.17±0.16	1.12±0.21	0.20	1.10-1.18
Magnesium	0.81±0.06	0.76±0.01	0.03*	0.77-0.82
Iron study				
Ferritin (ng/ mL)	64.81±117.47	75.73±77.19	0.54	52.06-87.95
Iron (µmol/L)	11.03±5.61	10.75±5.35	0.78	9.89-11.91
Transferrin (mg/dl)	257.01±85.61	269.87±55.87	0.36	249.65-277.87
Lipid profile				
Cholesterol (mmol/L)	4.56±1.02	4.67±1.08	0.44	4.46-4.75
Triglycerides (mmol/L)	1.24±0.66	1.32±0.76	0.41	1.17-1.37
HDL (mmol/L)	1.36±0.73	1.31±0.46	0.56	1.25-1.43
LDL (mmol/L)	2.76±0.96	2.70±0.92	0.69	2.59-2.87
Other tests				
Vitamin D (nmol/l)	69.26±36.91	54.82±33.62	0.01*	58.34-68.88

Values are presented as mean ± standrad deviation (SD).*P-value of <0.05. RA: rheumatoid arthritis, CI: confidence interval, ANA: antinuclear antibodies, anti-DNAase: anti-double strand antibodies, RF: rheumatoid factor, anti-CCP: anti-citrullinated peptide, ASMA: anti-smooth muscles antibody, anti Scl 70: anti-scleroderma 70, anti-RNP: anti-ribonuclear protein, anti-Sm: anti Smith antibody, FT: free thyroxine, Ft3: free triiodothyronine, TPO: thyroid peroxidase, RBC: red blood cells (10^6/mcL), Hb: hemoglobin (g/dl), Hct: hematocrit, MCV: mean cell volume (fL), MCH: mean cell hemoglobin (pg), MCHC: mean cell hemoglobin concentration (32-36 g/dL), RDW: red cell distribution width, Plt: platelet (10^3/mcL), MPV: mean platelet volume (9.4-12.3 fL), WCC: white cell counts (10^3/mcL), ESR: erythrocytes sedimentation rate (mm/min), CRP: C-reactive protein (mg/dl), eGFR: estimated glomerular filtration rate (ml/min), HbA1C: glycosylated hemoglobin (mmol/mol), ALT; alanine transferase (IU/L), HDL: high density, LDL: low density lipoprotein (mmol/L)

carotid intima-media thickness (cIMT) ultrasound examination had been carried out for all the participants. Differences were compared between the 2 groups; RA and controls were carried out using a T-test and Chi2-test.

Results: While there was no difference in age and gender distribution between RA and controls, RA patients showed more sub-clinical atherosclerosis with thicker cIMT (p=0.03), and an increased prevalence of carotid atherosclerotic plaque; 21 (21%) versus 6 (4%) healthy controls (p=0.00, Table 1). More CVD comorbidities; medical history showed more hyperlipidemia (p=0.01, Table 2). Physical examination revealed higher measured systolic (p=0.04) and diastolic blood pressure (p=0.04, Table 3). And, laboratory results review showed more subclinical hypothyroidism (p=0.03), higher level of fasting glucose level (p=0.04), and glycosylated hemoglobin level (p=0.03). As well, RA patients had more interstitial lung disease (p=0.00), Raynaud's phenomenon (p=0.00), iron deficiency anemia (p=0.03), and eye scleritis/uveitis (p=0.03, Table 2).

Further blood results indicated that RA patients have higher inflammatory markers; erythrocyte sedimentation rate (ESR, p=0.00) and C-reactive protein (CRP, p=0.00), white cell counts (p=0.00), platelet count (p=0.02), neutrophil count-% (p=0.00), neutrophil absolute count (p=0.00), lymphocyte count-% (p=0.01), and monocyte absolute count (p=0.02). More, higher RA-related antibodies like rheumatoid factor (RF) positivity (p=0.00), higher level of RF level (p=0.00), and more positive anti-cyclic citrullinated peptide (anti-CCP, p=0.00). On the other side, RA patients had lower red blood cells (p=0.04), total serum protein (p=0.02), albumin (p=0.0338), magnesium (p=0.03), and vitamin-D level (p=0.01, Table 4).

Conclusion: Rheumatoid arthritis patients have more RA-related systemic manifestations, high disease activity, laboratory values disturbance, CVD comorbidities, and subclinical atherosclerosis.

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Infrapatellar fat pad: fundamental role in osteoarthritis literature review

[1,2]Suad Hannawi, [3]Maria Alsalmi, [1]Haifa Hannawi

[1]Emirates Health Services, [2]Ministry of Health and Prevention, [3]Health Science College, United Arab Emirates

Background: Osteoarthritis (OA) is the most common form of arthritis and it is the second on the list of chronic diseases after migraine. Osteoarthritis is characterized by articular degradation, synovial inflammation, ligament degeneration, and bone and muscle alteration. Infrapatellar fat pad (IPFP) had been suggested to play a role in the pathogenesis of OA. This paper summarizes the role of the IPFP in the development and progression of OA.

Methods: It is a literature review with keywords: infrapatellar fat pad, intra-articular adipose tissue, knee, cytokine, adipokine, cartilage, inflammation, and osteoarthritis.

Results: The infra-patellar fat pad is a peri-articular structure of the knee joint and it contributes to OA initiation and progression through a different mechanism including the production of adipokines, cytokines, growth factors and interleukins, activation of different immune cells and inflammatory responses, and, inflammatory response provocation by nociceptive nerve fibers that secrete substance-P. The extensive innervations of the IPFP contribute to anterior knee pain even in absence of osteoarthritis.

Conclusion: Infrapatellar fat pad is an osteoarthritic joint tissue capable of modulating inflammatory and destructive changes in OA.

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Hypertension and aortic regurgitation are more prevalent in patients with rheumatoid arthritis compared to osteoarthritis and controls

HIGHLIGHTS FROM MIDDLE EAST RHEUMATOLOGY CONFERENCE

[1,2]Suad Hannawi, [3]Mahomood Y. Hachim, [1]Haifa Hannawi, [4]Maria AlSalmi

[1]Emirates Health Services, [2]Ministry of Health and Prevention, [3]College of Medicine, Mohammed bin Rashid University of Medicine and Health Sciences, [4]Health Science College, Dubai, United Arab Emirates

Background: Rheumatoid arthritis (RA) increases the risk of developing cardiovascular disease (CVD). As well, cardiac involvement, particularly the mitral valve, is widespread in RA patients with a higher incidence of congestive heart failure. Such clinical notion led to the emerging field of Cardio-Rheumatology needed for risk stratification and optimization of preventive strategies. Echocardiography is a valuable tool to identify cardiovascular manifestations. Due to the scarcity of data regarding cardiac disease in RA patients from the Middle East population, we studied echocardiographic features in RA patients compared to their age, gender, and traditional CVD risk factors matched osteoarthritis and controls.

Methods: In a cross-sectional study, we recruited 52 RA patients (46 females and 6 males) meeting the ACR-EULAR criteria of RA, and gender, traditional CVD risk factors matched osteoarthritis (OA, n=58; 53 females and 5 males) and controls (n=15; 13 females and 2 males). Standard trans-thoracic echocardiography examination was carried out by a specialty cardio-sonographer who was blinded to the status of the participants. Left ventricular dimensions, wall geometry, ejection fraction, diastolic parameters, right ventricular size and function, valve structure and function, pericardium, pulmonary pressures, and aortic root dimensions were assessed by echocardiography. T-test and Chi-2 test were used to compare the echocardiographic findings between the 2 groups, while ANOVA was applied for more than 2 groups' comparison. A p-value of <0.05 was considered significant.

Results: Although the median age was 41±12 years for the controls (without RA or OA), 52±11 years for OA patients, and 48±15 years for the RA patients, yet the age difference between OA and RA was within the same age group for CVD risk factors. When using patients' age as a risk for developing CVD, the risk doubles every 7.6 years, so the difference in echocardiography findings, when present, can indicate disease-specific findings rather than just age-related changes (Figure 1).

Rheumatoid arthritis showed more hypertension history (54.1%; 45.9% of the OA group, and 0% of the control, p=0.01, Table 1). On examination, patients with RA showed significantly higher diastolic blood pressure (DBP) at 76.58±9.9 mmHg compared to OA patients (73.04±9.4 mmHg) and controls (70.21±10.2 mmHg, p=0.05). In addition, systolic blood pressure (SBP) was also higher in RA patients (129.35±17.7 mmHg) compared to OA patients (125.85±15.5 mmHg) and controls (117.21±11.1 mmHg, p=0.04, Figure 2).

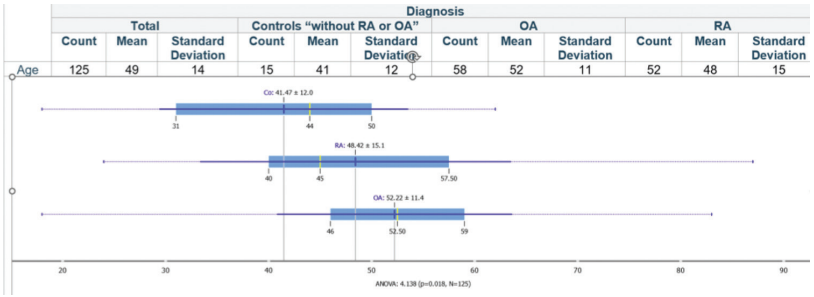

Figure 1 - Average age in years of the cohort involved in the study, including controls without rheumatoid arthritis (RA) or osteoarthritis (OA), patients with RA, and those with OA.

Table 1 - Distribution of CVS risk factors in the cohort.

Risk factors	Diagnosis												*P*-values
	Total			Co			OA			RA			
	Count	Raw	Column	Count	Raw	Column	Count	Raw	Column	Count	Raw	Column	
Atherosclerotic disease													
No	118	100%	94.4%	15	12.7%	100%	54	45.8%	93.1%	49	41.5%	94.2%	NS
Yes	7	100%	5.6%	0	0.0%	0.0%	4	57.1%	6.9%	3	42.9%	5.8%	
Hypertension													
No	88	100%	70.4%	15	17.0%	100%	41	46.6%	70.7%	32	36.4%	61.5%	0.01
Yes	37	100%	29.6%	0	0.0%	0.0%	17	45.9%	29.3%	20	54.1%	38.5%	
Dyslipidemia													
No	90	100%	72.0%	13	14.4%	86.7%	39	43.3%	67.2%	38	42.2%	73.1%	NS
Yes	35	100%	28.0%	2	5.7%	13.3%	19	54.3%	32.8%	14	40.0%	26.9%	
Sjogren													
No	120	100%	96.0%	15	12.5%	100%	55	45.8%	94.8%	50	41.7%	96.2%	NS
Yes	5	100%	4.0%	0	0.0%	0.0%	3	60.0%	5.2%	2	40.0%	3.8%	
Raynaud's													
No	121	100%	96.8%	15	12.4%	100%	57	47.1%	98.3%	49	40.5%	94.2%	NS
Yes	4	100%	3.2%	0	0.0%	0.0%	1	25.0%	1.7%	3	75.0%	5.8%	
Hypothyroidism													
No	110	100%	88.0%	14	12.7%	93.3%	52	47.3%	89.7%	44	40.0%	84.6%	NS
Yes	15	100%	12.0%	1	6.7%	6.7%	6	40.0%	10.3%	8	53.3%	15.4%	
Diabetes mellitus													
No	90	100%	72.0%	12	13.3%	80.0%	41	45.6%	70.7%	37	41.1%	71.2%	NS
Yes	35	100%	28.0%	3	8.6%	20.0%	17	48.6%	29.3%	15	42.9%	28.8%	
Other chronic disease													
No	80	100%	64.0%	11	13.8%	73.3%	37	46.3%	63.8%	32	40.0%	61.5%	NS
Yes	45	100%	36.0%	4	8.9%	26.7%	21	46.7%	36.2%	20	44.4%	38.5%	

Values are presented as numbers and precentages (%). Co: controls, OA: osteoarthritis, RA: rheumatoid arthritis

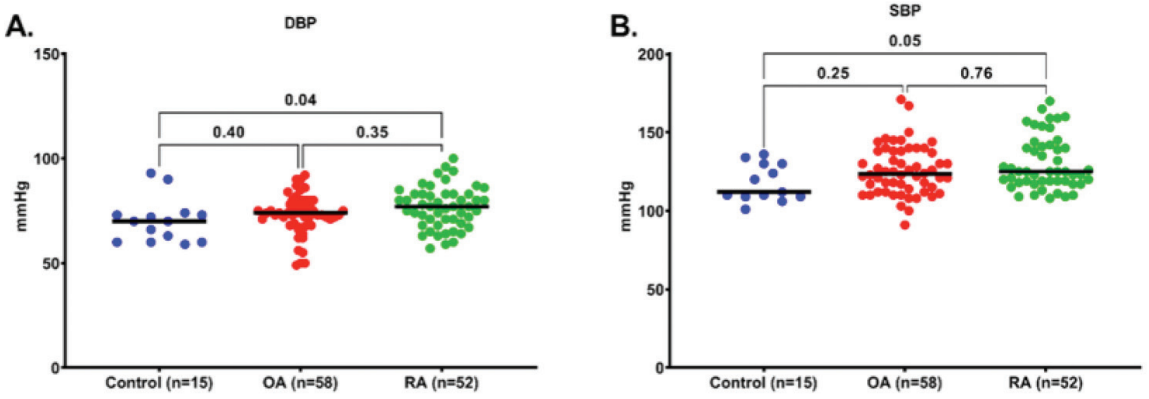

Figure 2 - Average DBP (**A**) and SBP (**B**) in mmHg of the cohort involved in the study, including controls without rheumatoid arthritis (RA) or osteoarthritis (OA), patients with RA, and those with OA. The Kruskal-Wallis test and Dunn's multiple comparison test were used for statistical analysis.

Among the different numerical variables generated by the echocardiography study, only aortic root measurements showed significant differences between the groups. Patients with OA had higher aortic root diameter (26.4±3.6mm) than controls (22.7±6.1mm, Table 2 & Figure 3).

Although RA showed a higher root diameter (26.5±3.7mm) than controls, the difference was statistically insignificant (Figure 3). But, looking at the categorical variables generated by the echocardiography study, the percentage of aortic regurgitation was statistically different between the groups. A total of 12 cases with aortic regurgitation represent 10% of the cohort. Nine out of the 12 patients with aortic regurgitation were in the RA group (75%), and 3 were in the OA group (25%, Table 3).

Table 2 - Distribution of numerical echo variables in the cohort.

Variables	Diagnosis				
	Co	OA	RA	Total	*P*-values
LV septum in diastole (mm)	8.75±1.36	9.70±2.00	9.35±2.02	9.42±1.96	NS
LV post wall in diastole (mm)	8.62±1.24	9.27±1.71	9.44±2.14	9.26±1.86	NS
LV end-diastolic diameter (mm)	40.1±6.6	42.9±5.0	43.6±6.8	42.8±6.1	NS
LV end-systolic diameter (mm)	24.6±4.3	26.6±3.9	27.1±5.5	26.6±4.7	NS
LV mass (g)	105.3±33.4	133.7±34.6	137.6±58.2	131.8±46.6	NS
EF (%)	68.8±5.3	67.8±6.4	67.1±8.1	67.7±7.0	NS
Deceleration time (ms)	183±31	191±55	184±47	187±49	NS
E (cm/s)	80.7±12.5	74.4±16.8	77.1±18.1	76.3±16.9	NS
E/A	1.43±0.37	1.16±0.40	1.28±0.47	1.25±0.43	NS
E' (cm/s)	12.13±2.57	10.29±3.24	11.44±3.59	11.00±3.36	NS
E/E'	6.81±1.88	7.76±2.17	7.13±2.05	7.38±2.10	NS
RV function (TAPSE, mm)	20.3±2.8	20.0±4.0	21.2±3.1	20.5±3.5	NS
Aortic root (mm)	22.7±6.1	26.4±3.6	26.5±3.7*	26.0±4.2*	0.005
Pulmonary pressure (mmHg)	10±12	11±9	9±9	10±9	NS

Values are presented as mean ± standrad deviation (SD). Results are based on 2-sided tests assuming equal variances. For each significant pair, the key of the smaller category appears in the category with the larger mean. * The significant level of 0.05 (adjusted for all pairwise comparisons within a row of each innermost subtable using the Bonferroni correction.

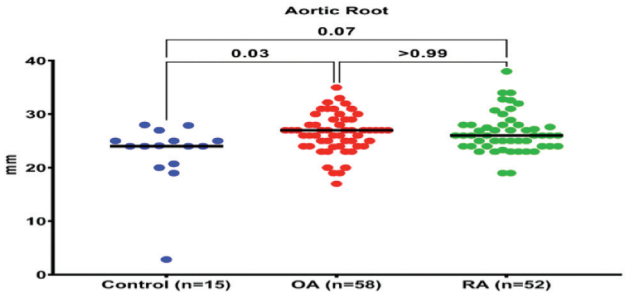

Figure 3 - Average arotic root diameter in mm of the cohort involved in the study, including controls without rheumatoid arthritis (RA) or osteoarthritis (OA), patients with RA, and those with OA. The Kruskal-Wallis test and Dunn's multiple comparison test were used for statistical analysis.

Conclusion: Although OA patients were older than RA but within the same CVS age-related risk of RA and controls. Patients with RA and OA showed higher DBP, higher SBP, and reported hypertension. Patients with OA but not RA showed higher aortic root diameter compared to controls.

Table 3 - Distribution of categorical echo variables in the cohort.

Variables	Diagnosis												*P*-values
	Co			OA			RA			Total			
	Count	Row	Column	Count	Row	Column	Count	Row	Column	Count	Row	Column	
LV mass index (g/m²)													
1	6	9.8%	40.0%	28	45.9%	50.9%	27	44.3%	54.0%	61	100%	50.8%	NS
2	0	0.0%	0.0%	1	33.3%	1.8%	2	66.7%	4.0%	3	100%	2.5%	
3	0	0.0%	0.0%	2	33.3%	3.6%	4	66.7%	8.0%	6	100%	5.0%	
4	9	18.0%	60.0%	24	48.0%	43.6%	17	34.0%	34.0%	50	100%	41.7%	
Grade of DD													
0	10	14.9%	66.7%	29	43.3%	52.7%	28	41.8%	56.0%	67	100%	55.8%	NS
1	2	5.6%	13.3%	20	55.6%	36.4%	14	38.9%	28.0%	36	100%	30.0%	
2	3	17.6%	20.0%	6	35.3%	10.9%	8	47.1%	16.0%	17	100%	14.2%	
Aortic regurgitation													
0	15	13.9%	100%	52	48.1%	94.5%	41	38.0%	82.0%	108	100%	90.0%	0.039
1	0	0.0%	0.0%	3	25.0%	5.5%	9	75.0%	18.0%	12	100%	10.0%	
Aortic stenosis													
0	15	12.6%	100%	55	46.2%	100%	49	41.2%	98.0%	119	100%	99.2%	NS
1	0	0.0%	0.0%	0	0.0%	0.0%	1	100%	2.0%	1	100%	0.8%	
Mitral valve prolapse													
0	15	13.0%	100%	51	44.3%	92.7%	49	42.6%	98.0%	115	100%	95.8%	NS
1	0	0.0%	0.0%	4	80.0%	7.3%	1	20.0%	2.0%	5	100%	4.2%	
Mitral regurgitation													
0	15	13.0%	100%	51	44.3%	92.7%	49	42.6%	98.0%	115	100%	95.8%	NS
1	0	0.0%	0.0%	4	80.0%	7.3%	1	20.0%	2.0%	5	100%	4.2%	
Mitral stenosis													
0	15	12.7%	100%	54	45.8%	100%	49	41.5%	98.0%	118	100%	99.2%	NS
1	0	0.0%	0.0%	0	0.0%	0.0%	1	100%	2.0%	1	100%	0.8%	
Tricuspid regurgitation													
0	13	12.1%	86.7%	48	44.9%	87.3%	46	43.0%	92.0%	107	100%	89.2%	NS
1	2	15.4%	13.3%	7	53.8%	12.7%	4	30.8%	8.0%	13	100%	10.8%	

Values are presented as numbers and precentages (%). Results are based on nonempty rows and columns in each innermost subtable. The Chi-square statistic is significant at 0.05 level. Co: controls, OA: osteoarthritis, RA: rheumatoid arthritis

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MRC2022-A-1023

Pulmonary manifestation of rheumatoid arthritis - Qatar experience

[3]Maryam A. Al-Nesf, [1]Mousa S. Hussein, [2]Fiaz Alam, [3]Sami Aqel, [1]Tasleem Raza, [1]Hisham A. Sattar, [2]Samar Alemadi

HIGHLIGHTS FROM MIDDLE EAST RHEUMATOLOGY CONFERENCE

[1]Hamad Medical Corporation, [2]Rheumatology Division, Department of Medicine, Hamad Medical Corporation, [3]Allergy & Immunology Division, Department of Medicine, Hamad Medical Corporation, Doha, Qatar

Background: A wide range of pulmonary findings can complicate rheumatoid arthritis (RA) or toxicity from its treatment. The overall frequency was estimated to be 25.8% in Saudi Arabia, while data are scares in other parts of the Middle East. This study aims to evaluate the rate of lung findings and associated risk factors in patients with RA in Qatar.

Methods: A retrospective chart review was carried out for patients diagnosed with RA, retrieved from the rheumatology division data registry (12/2019-12/2021) at a tertiary hospital in Qatar. All types of lung presentations (clinical and radiological) were analyzed.

Results: A total of 744 patients with RA, an F:M ratio of 2.4:1, and a median (IQR) age of 51 (60-41) years were included in the final analysis. The presence of mixed connective tissue disorders accounted for 13.6% of patients. Methotrexate (59.4%), hydroxychloroquine (25.3%), and sulfasalazine (10.6%) dominated the drug of choice in patients with or without lung manifestations, followed by leflunomide (10.5%), tofacitinib (7.3%), rituximab (6.0%), and certolizumab (4.2%). The pulmonary diseases were identified in 58 (7.8%) patients in the following order: 11 (19%) ILD (NSIP), 11 (19%) pulmonary nodule, 10 (17.2%) asthma, 9 (15.5%) bronchiectasis, 6 (10.3%) ILD (UIP), and 3 (5.2%) OSA. The COOP, malignancy (lymphoma, mets), and pulmonary HTN presented in 2 patients for each, while pulmonary embolism, pericardial effusion, and pleural effusion complicated a single patient for each. Almost all patients had lung radiology at one stage in their records. Abnormal radiological findings were also identified without symptoms in only 15 (2.2%) out of the remaining 686 patients in the form of old tuberculosis scaring, lung nodules, and congenital anomalies (congenital absence of R pulmonary artery and dextrocardia-situs inversus), diffuse fine reticular shadowing, ground glass opacity or mosaic changes and focal bronchiectasis. "Non-specific increased broncho-vascular markings" were present in most CXR of patients with no symptoms. Lung function assessment was utilized in 51 patients with a mean ± SD of 78.6±18.9 for FEV1%, 79.8±15.8 for FVC%, and 81.9±10.3 for FEV1/FVC%. The COVID-19 pandemic contributed to transient lung manifestations in 267 patients over the last 2 years, and 2 patients had the infection twice (almost a year apart). Among these patients, 39 were admitted, and 2 died of complications. The total death in this cohort is 5 (0.67%) patients (2 due to COVID-19 pneumonia and ARDS, 2 due to sepsis, and one due to metastasis). Smoking habits continue to be challenging in RA and lung diseases. In this population, we identified 69 smokers (18 ex-smokers), and 8 had concomitant lung disease.

Conclusion: All THORAX components, including lungs, airways, pleura, and vessels, can be affected by RA. The overall rate of lung manifestation of RA in Qatar is less than that reported in other geographical areas. Patients with RA should be regularly evaluated for pulmonary disease, and, in exchange, patients with pulmonary disease of unknown etiology should always be evaluated for RA.

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HIGHLIGHTS FROM MIDDLE EAST RHEUMATOLOGY CONFERENCE

Category: Clinical Cases

MRC2022-A-1028

COVID and autoimmune diseases

[1]Samy Zakout

[1]Medcare Hospital, Sharjah, United Arab Emirates

Background: The new development or the exacerbation of an already existent autoimmune disease after COVID infection or vaccine has been described in several occasions in the literature.
In this report, 2 cases are being discussed in order to shed light on this evolving aspect. In patient A, the occurrence of a potentially rare autoimmune disease seems to have followed a COVID infection, whereas in patient B, another stable and well-controlled autoimmune illness has become overly active and hard to treat after a COVID vaccine booster dose.
Patient A. A SRP-positive polymyositis is a rare form of the idiopathic inflammatory myositis group. It is also characterised by its unique myocardial muscle involvement as well as the necrotising and treatment-resistant myopathy.
A previously healthy 48-year-old male patient developed muscle weakness associated with some elevation of creatine kinase (CK) only one month after acquiring COVID infection. When he then experienced chest pain and further to his high troponin level, he had a coronary angiogram that ruled out any coronary event. His autoimmune profile later on confirmed positive SRP and Ro52 antibodies and his CK was significantly elevated at 12,000. He then received immunosuppression with high glucocorticoid doses and mycophenolate mofetil (MMF). When he relapsed after his initial improvement, he was considered for rituximab therapy.
Patient B. A 40-year-old female patient with a 5-year history of stable and controlled lupus nephritis developed acute nephrotic syndrome one week after the COVID vaccine booster dose. She used to be on MMF 1 g daily without any glucocorticoids when no protein had been detected in her urine.
Straight after the vaccine, she developed peri-orbital and lower limb oedema and significant hair loss. When reviewed in the rheumatology clinic, her 24 hour-urinary protein exceeded 6 g and her complement 3 was reduced. She had then received 3 pulses of intravenous methylprednisolone 500 mg followed by daily oral prednisolone at 10 mg in addition to increasing her MMF to 3 g daily. As the patient was reluctant to increase her oral prednisolone and in the presence of her poor response to those treatment measures, she received one cycle of rituximab of a total of 2 g over 2 weeks. Fortunately, her lupus responded very well to rituximab in terms of protein-losing nephropathy and hair loss as early as one month after the infusion.
The above-mentioned 2 reports provide further evidence to the globally reported similar cases when a form of the immune system dysregulation seems to follow a COVID-related clinical event either in the form of the pertinent vaccine or the illness itself.

Conclusion: More case reports are still needed in order to add further support to this growing awareness regarding these pathological events that could follow both COVID infections and its vaccine. Patients would need to be kept informed when a clinical decision regarding the vaccine is to be made. As yet, the benefits of such a vaccine would probably outweigh the risks, but every single case ought to be addressed separately.

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HIGHLIGHTS FROM MIDDLE EAST RHEUMATOLOGY CONFERENCE

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Intestinal pseudo-obstruction secondary to lupus enteritis: a rare but significant complication of systemic lupus erythematosus (SLE)

[1]Shaista Khadim, [1]Sallam Saki, [1]Ethar Malik, [1]Elsadeg Sharif

[1]Al Jalila Children's Specialty Hospital, Dubai, United Arab Emirates

Background: Lupus enteritis, although rare, is one of the leading causes of systemic lupus erythematosus (SLE) related acute abdominal pain in patients of SLE. By definition, lupus enteritis is either vasculitis or inflammation of the small bowel. It can have a poor prognosis in adolescents and children leading to life-threatening complications if not managed timely. Its pathology is often hypothesised to be due to immune-complex deposition and complement activation leading to submucosal edema. A severe manifestation in SLE patients with acute abdominal pain and vomiting is intestinal pseudo-obstruction (IpsO) which presents similar to an intestinal obstruction without any isolated mechanical cause. Diagnosis is usually carried out based upon clinical and radiological evidence.
We present a case of a 13 year old girl who was recently diagnosed with SLE and was on tapering doses of steroids when she presented to us with severe abdominal pain, associated with nausea and bilious vomiting. Pertinent labs revealed elevated ESR, low C3 and C4, elevated CRP, and hypoalbuminemia. She underwent a CT abdomen which revealed classic findings of lupus enteritis including dilated small bowel loops, target sign and comb sign causing intestinal pseudo-obstruction. Pleural effusion and ascites were also noted. A multidisciplinary team approach was adopted (including surgery, gastroenterology, rheumatology, nephrology, and radiology) and a final diagnosis of intestinal pseudo-obstruction secondary to inflammatory enteritis was carried out. She was started on high dose prednisolone and mycophenolate mofetil, to which she improved significantly and was subsequently discharged after a stay of 25 days in the hospital. She was also diagnosed with lupus nephritis grade II during the stay and was discharged on lisinopril. A magnetic resonance enterography carried out prior to discharge revealed significant resolution of findings noted in the bowel with residual activity.

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MRC2022-A-1017

Effectiveness of methotrexate in treating granulomatous mastitis with sustained outcome - a case series - UAE - Tawam Hospital - Al Ain

[1]Hiba I. Khogali, [1]Walaa El. Elkhalifa, [1]Ahmed A. Shehada, [1]Aseed S. Mistarihi, [1]Yahya R. AlWaqfi

[1]Tawam Hospital, Al Ain, United Arab Emirates

Background: Idiopathic granulomatous mastitis (IGM) is a chronic benign inflammatory breast disease which has been prevalent throughout literature since 1972. Its clinical presentation and progression of disease mimics that of breast adenocarcinoma. The main management was surgical extraction plus/minus the use of high doses of oral steroids with few reports regarding methotrexate use as adjuvant therapy. In this case series, 4 cases of IGM are reported of which have failed management through surgery and use of high dose steroids and respond well to oral methotrexate with sustained cure.

HIGHLIGHTS FROM MIDDLE EAST RHEUMATOLOGY CONFERENCE

Case 1. A 37-year-old Emirati lady married with 3 children - all breast fed; presented to the breast clinic Tawam Center in April 2020 with painful breast lumps at 3:12 o'clock for more than 2 weeks. A prolonged antibiotic course failed to achieve resolution.
Case 2. A 42-year-old Emirati lady with 6 children - all breast fed, presented in March 2020 with painful breast lumps at 1-4 o'clock. Antibiotics for 6 weeks failed to contain the lesions.
Case 3. A 42-year-old Palestinian lady with 3 children - all breast fed; presented to the breast clinic in October 2020 with a painful breast lump at 5 o'clock which progressed to abscess formation. Although the patient was managed through incision and drainage as well as a prolonged course of antibiotics for 2 weeks, the lesions did not only persist, but they observed growth in size.
Case 4. A 33-year-old Emirati lady with a history of diabetics mellitus for several years, married with 2 children - all received normal lactation, presented to the breast center in January 2020 complaining of a breast lump at 12 o'clock. Patient received antibiotic course for 4 weeks with no remarkable results.
All 4 cases were investigated thoroughly through blood and radiological films. There was no clinical evidence of

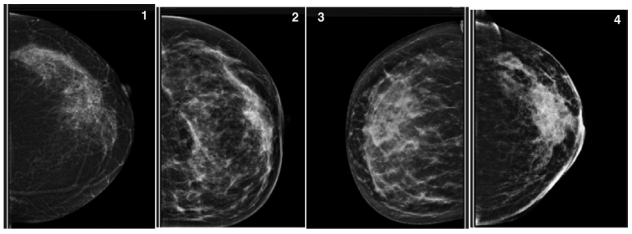

Figure 1 - Mammograms of al 4 cases.

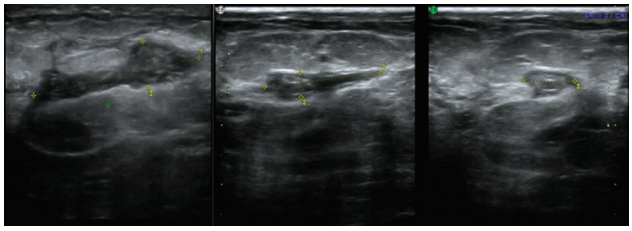

Figure 2 - Ultrasound images.

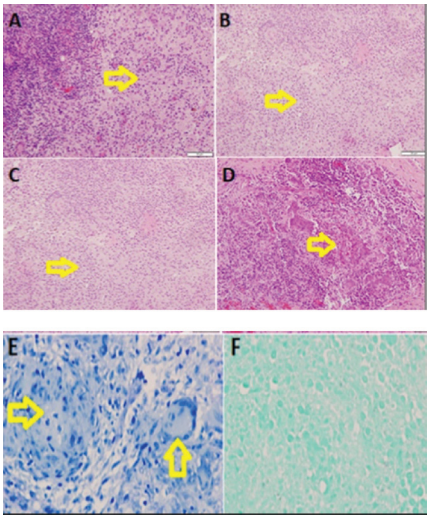

Figure 3 - Histopathology samples. **A,B,C, and D**) Shows infiltration of breast lobules by epithelioid non-caseating granuloma. **E**) Non-caseating granuloma with negative Zeil-Neelson stain for acid fast bacilli. **F**) Non-caseating granuloma with negative Grocott (methanmine) silver stain for fungi.

underlining sepsis, bacterial, or fungal infections. Immunological screens were negative. All mammograms were negative for malignancy features. Ultrasound scans revealed multifocal lesions with chronicity appearance and no signs of malignancy. The BI-RADS score ranged from grade II in 3 cases to grade III in one case. Breast biopsies revealed the characteristics histopathological features of chronic granulomas associated with multinucleated giant cells. A diagnosis of idiopathic granulomatous mastitis was carried out.
All cases received a high dose of oral prednisolone ranging from 25-30 mg for 6-8 weeks, but unfortunately no lesions regression had occurred, instead, some cases showed progression of lesions in number and sizes. Methotrexate was introduced in a dose of 15 mg Po weekly. In 4-6 weeks, prednisolone was successfully tapered and stopped. Lesions continue to regress in size and achieved complete resolution in a maximum of 9 months. Cases were followed for a year and no recurrence occurred.

Conclusion: The use of oral methotrexate in dose of 15 mg weekly demonstrates a significantly promising effect not only in treating IGM but showing a sustained effect for a full year after treatment. This should be taken into consideration when managing future cases of IGM.

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MRC2022-A-1016

COVID vaccine tiggering new onset development of systemic lupus erythematosus with lupus nephritis

[1]Hiba Khogali, [1]Abdul Rahman K. Aleissaee

[1]Tawam Hospital, Al Ain, United Arab Emirates

Background: The COVID-19 pandemic infection was the most serious panic-inducing events in 2020. It yielded the highest rate of death faced by humans population during recent century. The quick need to develop vaccines and emergency use authorization was a fundamental desire. However, the new etiology of the virus has revealed its suspected effects upon body physiology and other many unclear factors were associated by the development of some specific diseases. A case was reported of a 29-year-old female married not having children and with no pervious past medical problem presented initially with non-specific symptoms; 2 weeks after receiving the second dose of Pfizer vaccine. Clinical evaluation supported by laboratory findings fulfilled the diagnosis of SLE in absence of other diagnoses.
Pfizer vaccine is an m-MRN vaccine approved for SARS-Cov2 virus was reported as one of most potent newly developed vaccine against COVID-19. It works by producing viral proteins provoking the immune system to develop antibodies against SARS-Cov2 virus. With the board use of vaccine worldwide, several case reports stated the development of variety of autoimmune diseases.
A 29-year-old female was admitted under Internal Medicine team with 5 days history of abdominal pain, pleuritic chest pain, orthopnea, nausea, vomiting, and watery diarrhea, 2 weeks after receiving second dose of Pfizer vaccine (mRNA vaccine). Furthermore, she reported history of fatigue, arthralgia, hair loss, depressed mood, decreased activity, dry eyes, and mouth. There was no history of fever, oral ulcers, or joint stiffness. On physical examination, she was found to have a distended abdomen with bilateral lower limbs pitting edema. No rash, swollen or tender joints could be identified. All routine laboratory tests came negative including septic work panels. The immunological screen revealed positive anti-nuclear antibody (ANA titer 1:640, speckled pattern), extractable nuclear antigen (ENA, with positive SSA and SSB antibodies) and double-stranded DNA antibodies (dsDNA

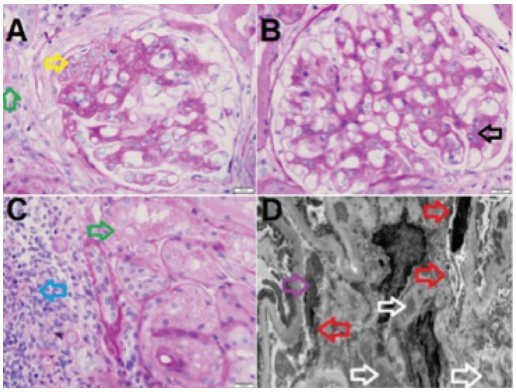

Figure 1 - A glomerulus with segmental endocapillary proliferation (yellow arrow). **A)** There is focal acute tubular injury (green arrow). **B)** Show a glomerulus with mesangial expansion and segmental mild increase in mesangial cells (black arrow). **C)** Show focal acute tubular injury (green arrow) and interstitial inflammatory cells consisting of lymphocytes mainly (Blue arrow). **D)** Show electron microscopic changes consist of mesangial electron dense deposits (white arrows), subendothelial deposits (red arrows) and intracapillary hyaline thrombus (purple arrow).

66.5 IU/mL). She had low C3 (0.42 g/L) and C4 (0.09 g/L) levels. Radiological films (CT abdomen/pelvis) documented bilateral pleural effusion, moderate ascites, and multiple enlarged lymph nodes in the para-aortic and aortocaval, pericaval and alongside the femoral and iliac vessels in the pelvis. Patient developed persistent proteinuria (1.11 g/g creatinine) and hematuria with stage one acute renal impairment for which renal biopsy was carried out. Renal biopsy revealed focal lupus nephritis, segmental, active, ISN/RPS Class III-S(A). The patient meets the criteria for SLE diagnosis based on presence of alopecia, serositis, positive ANA, positive dsDNA, and low complements with SLEDAI-16. She received parental steroids followed by oral dose, hydroxychloroquine, and mycophenolate. After 2 months, the patient achieved clinical low disease activity with SLEDAI-2.

Conclusion: This case highlights the triggering effect of Pfizer vaccine towards autoimmunity, occurring as systemic lupus erythematosus with progression of its other disease entities. Early recognition and treatment of such cases is associated with better clinical outcomes. More scientific research models are needed to detect such impact of the vaccine.

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MRC2022-A-1015

PRES an undesired effect of RTX in 2 cases of severe SLE patients

[1]Hiba I. Khogali, [1]Walaa E. Saeed

[1]Tawam Hospital, Al Ain, United Arab Emirates

HIGHLIGHTS FROM MIDDLE EAST RHEUMATOLOGY CONFERENCE

Background: Rituximab is an effective potent biological medication used to neutralize SLE severity with good outcome. However, rituximab can result in a serious complication such as PRES. Posterior reversible encephalopathy syndrome (PRES) is a rare neurological manifestation; where it is characterized by the alteration in mental status, headaches, visual disturbances, and seizures. The syndrome can be associated with an acute onset of high blood pressure.

The objective of reporting these 2 cases is to highlight the undesired side effect of RTX in its usage to treat significant SLE manifestations.

We are reporting 2 cases that have fulfilled the SLE criteria according to ACR/SILCC-2012 and were treated with rituximab. After initiation of rituximab therapy both patients developed PRES.

Both cases, a 20-year-old Egyptian female and a 32-year-old Emirati female, satisfy the clinical and laboratory criteria for severe SLE (SLEDAI CK score of 32 and 39) and were managed with plus steroids (1000 mg daily for 3 consecutive days), full dose of hydroxychloroquine and 2 doses of RTX 1000 mg.

Each of the beforementioned cases responded well clinically to the emergency management and demonstrated a significant improvement in the laboratory markers of SLE. However, the 2 cases have developed PRES after taking the second dose of rituximab. The 20-year-old Egyptian female developed PRES within 2 days of receiving the second dose of rituximab whereas the 32-year-old Emirati patient developed PRES within 31 days.

The cases illustrated manifestations of altered mental status, confusion, seizures, and acute high blood pressure. Radiological imaging such as CT, EEG, MRA, as well as MRV were all negative, whereas an MRI of the brain showed enhanced hypertense lesions at the parietooccipital region and the cerebellum (**Figure 1**). These signs and symptoms were consistent with PRES.

Both patients did not exhibit any signs of sepsis and were not on any other medications as well they did not have any pre-exiting medical illness.

Conclusion: Rituximab treatment in severely ill SLE patients can induce PRES both acutely and at long term.

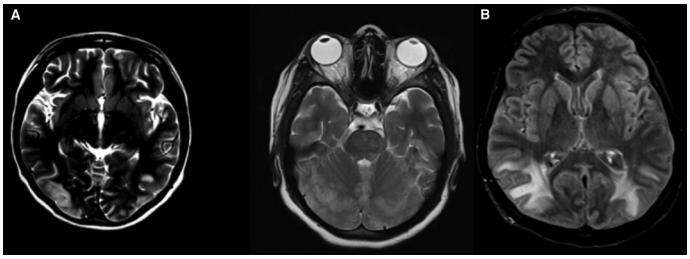

Figure 1 - An MRI of the brain. **A)** Case 1. **B)** Case 2.

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MRC2022-A-1024

The antiphospholipid syndrome: 62 cases

[1]Zohra Aydi, [1]Rihem Boukhzar, [1]Mehdi Somai, [1]Imene Rachdi, [1]Besma Ben Dhaou, [1]Fatma Daoud, [1]Fatma Boussema

HIGHLIGHTS FROM MIDDLE EAST RHEUMATOLOGY CONFERENCE

[1]Habib Thameur Hospital, Tunis, Tunisia

Background: The antiphospholipid syndrome is an autoimmune and thrombogenic pathology that the diagnosis is based on clinical and biological criteria. The SAPL can be isolated (primary SAPL) or associated with another autoimmune disease (secondary SAPL), most of the time a systemic lupus erythematosus. The purpose of this work is to finalize the epidemiological, clinical, biological, characteristic and the therapeutic and evolutionary modalities of the SAPL in these various forms.

Methods: We led a retrospective and descriptive study of the patients followed in the service of internal medicine of the hospital Habib Thameur of Tunis for SAPL.

Results: We brought together 62 cases distributed in 61 women and one man. The average age was 41 years. The peripheral thromboses were observed in 51.6%. The obstetric accidents were found at 26 patients dominated by repeated abortion (35.5%) and fetal death in uterus (16.1%). The cardiac infringement was dominated by valvular disease in 9.6%. The lung demonstrations were represented by a pulmonary embolism in 32.25% and a lung arterial high blood pressure in 19.3%. The neurological infringement was present in 29% (cerebrovascular accident in 52.6%, cerebral venous thrombosis in 3.2%). The SAPL was primary in 32% and secondary in 86%. The CAPS was found in 2 cases. The systemic lupus erythematosus was present in 59.7%. The immunological balance sheet revealed aCL in 77.4%, anti-ß 2GPI in 24.2%, and anti-PT in 17.7%. The comparative study showed a statistically significant correlation between the obstetric and vascular sign with the presence of aCL. A corticosteroid therapy (1 mg/kg/j) was indicated in 61.3% and immunosuppressive in 43.5%.

Conclusion: The antiphospholipid syndrome is a complex entity among which the knowledge and the understanding are in permanent evolution. It is necessary to think of it in front of any vascular recurrent thrombosis to a young subject or of unusual seat and in front of obstetric recurent accidents.

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MRC2022-A-1012

Unusual presentation of rheumatoid arthritis when the surgeon is involved

[1]Samy Zakout, [1]Toufik Tabbara

[1]Medcare Hospital, Sharjah, United Arab Emirates

Background: Pyoderma gangrenosum (PG) is an uncommon inflammatory and ulcerative skin disorder characterised histopathologically by the accumulation of neutrophils in the skin. The most common presentation of PG is the rapid development of one or more painful, purulent ulcer with undermined borders on sites of normal or traumatised skin.
A 19-year-old female patient with an unremarkable past medical history was referred last March to rheumatology by her dermatologist because of the suspicion of PG. She first received broad-spectrum antibiotics by her dermatologist for those ulcers and when there was no response to them, a biopsy was carried out and a referral to rheumatology was recommended.

At her first presentation in the rheumatology clinic, she gave a 10-day history of rapidly evolving deep and painful ulcers on both legs. On further systemic inquiry, she happens to have had joint pain and swelling in both hands that predated the occurrence of ulcers by 2 months for which no medical advice had been sought. There was history of weight loss and fatigue, but the patient had no other symptoms otherwise.
On examination, she had symmetrical small joint synovitis in both hands, and a total of 4 purulent leg ulcers with undermined borders on both legs measuring up to 7cm in the biggest diameter.
As PG was strongly suspected, the patient was first commenced on a moderate dose of prednisolone at 20 mg daily and a full set of blood tests was arranged.
When seen at the rheumatology clinic 2 days later, she reported some improvement in her legs pain and her blood tests confirmed an increased inflammatory response with a C-reactive protein of 46 and erythrocyte sedimentation rate of 50. She had neutrophilic leucocytosis. Her skin biopsy result then confirmed this diagnosis of PG. Her antinuclear antibodies, rheumatoid factor, cyclic citrullinated peptide and antineutrophil cytoplasmic antibodies were all negative.
At this stage, the patient was commenced on a glucocorticoid regimen of 0.75 mg/kg/day (35 mg) and referred to general surgery for optimal wound care.
At her subsequent reviews, she was showing symptoms and signs of improvement in her joints and skin. Her synovitis completely resolved. Her ulcers in particular were healing promptly and decreasing in size. In order to allow glucocorticoid tapering without disease recurrence, she was commenced on ciclosporin 100 mg daily with regular kidney function and blood pressure monitoring. Of note, her leg ulcers completely healed up over the space of 2 months leaving only post-inflammatory hyperpigmentation. Her inflammatory response completely normalised. The patient is currently on prednisolone 5 mg daily and has been on anti-TNF therapy with adalimumab for 2 months as her blood pressure started to rise. Of note, methotrexate was avoided initially as her liver enzymes were elevated during the acute stage.

Conclusion: Despite the aggressive nature of PG and the potential difficulty in treating it, this patient showed a remarkable and swift response to standard immunosuppression without the need for intravenous immunoglobulins. Moreover, this case is being reported as it would rather be unusual for seronegative rheumatoid arthritis to present first with PG in an otherwise healthy patient. On the other hand, it can also be concluded that rheumatoid arthritis, to which the patient fully satisfied the relevant classification criteria, would have been the main reason behind this PG taking into account that no alternative causes, such as inflammatory bowel disease, were suggested when her calprotectin was negative. Also, the speed of ulcers progression over only 10 days made another point worth reporting.

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MRC2022-A-1003

A rare systemic disease behind chronic microcytic anemia: case report microscopic polyangiitis

[1]Mais Mamoon, [1]Mohamed Hefzy, [1]Ahmed Elmansoury

[1]Thumbay Hospital, Ajman, United Arab Emirates

Background: Microcytic hypo chromic anemia is a common form of anemia especially in young females. Microcytic hypo chromic anemia is primarily caused by fall in iron store below normal acceptable level. This type of anemia is known as iron deficiency anemia (IDA). It is usually related to unhealthy diet, blood loss from heavy menses or presence of underlying systemic condition.

In terms of blood loss always there is a chance of invisibility of the site of bleeding. For example, diffuse alveolar hemorrhage (DAH) in which there is bleeding into the alveolar spaces of the lungs. The DAH is caused by injury of alveolar-capillary basement membrane. The DAH is reflected in practice as cough, fever, hemoptysis, and dyspnea. Iron deficiency anemia and DAH are part of microscopic polyangiitis (MPA) which is an uncommon systemic disease. It is the result of blood vessel inflammation (vasculitis), which can damage organ systems. The sites most commonly affected by MPA include the kidneys, lung, nerves, skin, and joints.
Here is a case report of a young lady who was underestimated since one year. Her compliant was refractory anemia and recurrent hemoptysis. Finally she presented in a critical situation. In contrast to previously, this time she was immediately diagnosed as a case of refractory microcytic hypo chromic anemia, DAH, incidental findings of renal involvement, and recurrent eye pain. She was admitted to intensive care and after hemodynamics stabilizations her kidney biopsy confirmed microscopic polyangiitis. She was treated accordingly with steroids and cyclophosphamide.

Conclusion: Our message is that anemia which is refractory to the usual iron supplements is an important clue to an alternative diagnosis. Small-vessel vasculitis should be suspected in any patient who presents with a multisystem disease that is not caused by an infectious or malignant process. She might be diagnosed earlier if we increase awareness of physicians of referring to rheumatologist when no obvious explanation of anemia.

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MRC2022-A-1002

Adult's onset still disease in Zanzibar: an unusual presentation

[1]Noorein A. Omar, [2]Sanaa S. Said, [3]Clive Kelly

[1]Mnazi Mmoja Hospital, [2]The State University Of Zanzibar, [3]James Cook University Hospital, Zanzibar Tanzania

Background: Adult onset still's disease (AOSD) is a rare systemic auto-inflammatory disease, characterized with persistent high spiking fever, arthralgia, and salmon coloured skin rash. However, it can present with pericardial and pleural effusion in over 20% of patients mimicking idiopathic recurrent pericarditis. Herein, we present a case of AOSD that presented with recurrent pericardial and pleural effusion with no fever. We aim to raise physicians' awareness of the multifaceted presentation of AOSD.

Conclusion: Adult onset still's disease was first described by George Still in 1896, and subsequently in 1971 by Bywaters. In earlier descriptions, serositis (pericarditis or pleuritis) was proposed as a main symptom of AOSD. In tropical regions, serositis is often considered a consequence of infection which may delay the correct diagnosis of AOSD. In our case where fever was not a predominant symptom and the rash may not have been visible because of dark skin, the diagnosis was further delayed. Physicians should therefore consider atypical presentations of AOSD that occur in up to 20% of patients, with serositis and other systemic features in the absence of fever. A raised serum ferritin remains a useful diagnostic indicator.

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HIGHLIGHTS FROM MIDDLE EAST RHEUMATOLOGY CONFERENCE

Category: Health Professionals in Rheumatology Practice and Clinical Care

MRC2022-A-1044

Systematic literature review on the use of biosimilars in the treatment of rheumatic diseases in the Gulf Region

[1]Khalid A. Alnaqbi, [2]Nasra Al Adhoubi, [3]Sara Al Dallal, [4]Samar Al Emadi, [5]Adeeba Al Herz, [6]Amin M. El Shamy, [7]Suad Hannawi, [8]Mohammed A. Omair, [9]Sahar A. Saad, [10]Tore K. Kvien

[1]Tawam Hospital - College of Medicine & Health Sciences, UAE University, [2]Royal Hospital, [3]Dubai Health Authority, [4]Hamad Medical Corporation, [5]Al-Amiri Hospital, [6]Ministry of Health and Prevention, [7]Emirates Health Services, [8]King Saud University, Riyadh, Saudi Arabia, [9]King Hamad University Hospital, [10]Center for Treatment of Rheumatic and Musculoskeletal Diseases (REMEDY), Diakonhjemmet Hospital

Background: The treatment of rheumatic diseases with biologic agents has significantly improved disease management and patient outcomes; however, innovator reference products are associated with high costs which may limit access. Biosimilars, which are highly similar to reference products in terms of quality, safety and efficacy can reduce the financial burden and underutilization of medication while still being effective and safe.
The objective of this initiative was to carry out a systematic review of clinical evidence that would support the development of evidence-based consensus recommendations aimed at standardizing and driving alignment on best practices for the use of biosimilars in the treatment of adult patients with rheumatoid arthritis, psoriatic arthritis, spondyloarthritis, and ankylosing spondylitis in the Gulf region.

Methods: A scientific committee comprising expert rheumatologists, pharmacists, and healthcare economists convened to formulate specific PICO questions that address key topics of interest concerning biosimilars: comparability of the efficacy, safety, and immunogenicity of biosimilars to their reference products, extrapolation of indications, switching from reference products to biosimilars and between biosimilars, cost-savings with biosimilars, retention rates with biosimilars, the nocebo effect among patients, and the general awareness and perceptions of biosimilars in the Gulf region.
A systematic literature review was carried out using PubMed with the aim to identify, select, and critically appraise the quality of the overall body of evidence which demonstrates the value proposition of biosimilars in rheumatic disease. This was carried out using defined eligibility criteria to include meta-analyses, clinical trials, and systematic reviews of adult patients aged 19 years or older with rheumatoid arthritis, psoriatic arthritis, spondyloarthritis, and ankylosing spondylitis who received biosimilars at some point during their course of treatment. Publications that did not meet the eligibility criteria, including studies in healthy subjects and patients with other inflammatory conditions, were excluded from the systematic review. As the data before 2017 has already been reviewed in another publication, the current review focused on data that was published between 2017 and 2022. The systematic review was registered on PROSPERO with registration ID No.: CRD42022364002.
Results: The search yielded 1,111 results which included meta-analyses, clinical trials, and systematic reviews published between 2017 and 2022. After screening by publication type, relevance, and duplicates, 1,004 records were excluded, and a total of 107 relevant publications were incorporated in the summary of evidence. All methods were fully reported following the recommended reporting guidance (PRISMA 2020).

Conclusion: The systematic review allowed for a transparent and reproducible methodology to aggregate clinical evidence, and address the defined PICO questions to subsequently support the development of overarching principles and recommendations. The aim is to facilitate the integration of clinical evidence with clinical expertise to optimize decision-making for the use of biosimilars in patients with rheumatic diseases in the Gulf region.

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Prevalence and factors associated with back pain amongst health care workers in Ajman, United Arab Emirates

[1]Ahmad Rehman, [1]Saud K. Aldoseri, [1]Ahmed F. Saleh, [1]Hareth M. Alarayedh

[1]Gulf Medical University, Ajman, United Arab Emirates

Background: To determine the prevalence of back pain amongst health care workers in the United Arab Emirates, to assess the factors associated with back pain amongst health care workers, and to assess the preventive strategies adopted by the affected personnel.

Methods: A cross sectional study is going to be carried out where a representative sample of health care workers will be obtained from Thumbay Hospital. Upon taking permission from Thumbay University Hospital administration health care workers will be contacted to fill a questionnaire followed by statistical analysis of the data.

Results: The most common location of back pain seen amongst health care workers is the lower back, followed by the neck with 47.2%, shoulders with 43.4%, and upper back with 37.5%. Age did demonstrate an increase in back pain as the population grew. The emergency department reported the highest prevalence of back pain with 85% of staff having back pain. A correlation was found between presenting with chronic and non-communicable diseases and having back pain. Of the 38 participants that have chronic disorders 30 of them have back pain as well as out of 35 participants that had non communicable diseases 88.6% of them had association with back pain in the last 12 months.

Conclusion: Back pain is one of the problems that is hard to classify. They are certain factors that have strong links associated with back pain; however, in most cases the problem is multifactorial. Back pain is hard to diagnose as in most cases the cause is idiopathic. Back pain has shown to be one of the most common causes of hospital visits as well as days off from work.

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Prevalence and perspective of joint pain in healthcare providers and workers in UAE

[1]Arooj Bashir, [1]Jayadevan Shreedharan, [1]Madiha Farooqui, [1]Humaid Sadiq, [1]Ali Hassan
[1]Gulf Medical University, Ajman, United Arab Emirates

Background: This study aimed to assess the prevalence and factors related to joint pain among health care providers and workers.

Methods: It was a cross-sectional study carried out among 280 healthcare providers and workers of Thumbay Healthcare groups in Ajman, UAE. A self-administered questionnaire was distributed among the participants. The questionnaire was divided into 3 domains: socio-demographics, factors associated with joint pain, and perspective of joint pain.

Results: The prevalence of joint pain among the healthcare providers and workers was found to be 61%. There was no variation observed in the prevalence with respect to gender. Married individuals (64.3%) were shown to have a higher prevalence than singles (54.7%). With regards to age, the prevalence of joint pain was highest (70.7%) among those above 40 years of age. Statistically significant association of joint pain was observed with leisure activities, washing of dishes, driving, hereditary factors, and gynecological factors including menstrual cycle patterns and joint pain during menstruation.

Conclusion: A high prevalence of joint pain was observed among the healthcare providers and workers. It was found to be more prevalent in married individuals and among those above the age of 40. Several modifiable factors like leisure activities, washing of dishes, and driving were found to have a statistically significant association with joint pain.

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Experiences from a rheumatology clinic in Zanzibar: a retrospective review

[1,2,3]Sanaa Said, [3]Noorein Omar, [3]Maryam Mzee, [3]Hafidh Hassan, [3]Salama Pandu, [3]Ahlam Amour

[1]The State University of Zanzibar, [2]University of Bergen, [3]Mnazi Mmoja Hospital, Zanzibar, Tanzania

Background: Zanzibar is a group of semi-autonomous islands located off the coast of Tanzania in East Africa. The population is around 1.5 million according to the last census. There are 2 main islands Unguja and Pemba, with the only referral hospital located on Unguja island. Although there is no rheumatologist, patients with rheumatological disorders are seen at the referral hospital by a physician and dermatologist. It is the only government facility where rheumatology care and drugs are provided.
We present data from the hospital rheumatology clinic collected over a period of 6 years with gradual increase in number of patients as awareness and access to services were scaled up. We aimed to determine the number of patients seen at the rheumatology clinic, their demographics, common diagnosis, and treatment.

Methods: Data was collected retrospectively from records over a 5-year period. Data included age, gender, diagnosis, disease duration, time to diagnosis, and treatment given.

Table 1 - Patient's characteristics.

Characteristics	n (%)
Age, mean±SD	40.8±15.7
Female	162 (82.0)
Disease duration (years), mean±SD	6.3±6.6
Time to diagnosis (years), mean±SD	3.5±5.4
Diagnosis	
Rheumatoid arthritis	151 (76.0)
Systemic lupus erythematosus	22 (11.0)
Juvenile idiopathic arthritis	6 (3.0)
Scleroderma	4 (2.0)
Mixed connective tissue disease	3 (2.0)
Psoriatic arthritis	3 (2.0)
Spondyloarthropathy	3 (2.0)
Polymyositis	1 (1.0)
Dermatomyositis	1 (1.0)
Still's disease	1 (1.0)
Chronic recurrent multifocal osteomyelitis	1 (1.0)
Behcet's disease	1 (1.0)
Gout	1 (1.0)
Use of DMARD theraphy (n=146)	
Monotherapy	73 (50.0)
Dual therapy	51 (35.0)
Triple therapy	11 (8.0)
Biologic	11 (8.0)

Values are presented as numbers and precentages (%).

Results: A total of 198 patients were ever seen over the 5-year period of whom only 146 (73%) were on some level of follow up. Majority of patients was female. The most common diagnosis was rheumatoid arthritis 151 (76%) but with other rarer diagnoses seen. Patient medication was also recorded, and the last prescription filled was documented as well as biologic disease modifying anti-rheumatic drug use. Drugs available were methotrexate, sulfasalazine, hydroxychloroquine, leflunomide, azathioprine, mycophenolate, and rituximab. Results are summarized in Table 1.

Conclusion: Significant strides have been carried out in establishing rheumatology care and treatment at Mnazi Mmoja Hospital despite having no rheumatologist. Healthcare is free in Zanzibar, previously DMARD therapy was not included in the essential drug list but was revised after patient advocacy. There have also been regular educational training sessions with senior rheumatologists from other centers such as Newcastle and Bergen. This has helped increase the index of suspicion, early referral, and improved patient management. Efforts have also been carried out to educate the community via television and radio programs.
We hope with the above measures more patients will be reached and gain access to better care and improved outcomes.

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