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AB1140

ABNORMAL RIGHT VENTRICLE RESERVE FOLLOWING EXERCISE IN PATIENTS WITH CONNECTIVE TISSUE DISEASES

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Background: Recent studies have indicated that cardiac autonomic dysfunction is an early sign of cardiovascular impairment in patients with connective tissue disease (CTD). Previous studies have mainly focused on autonomic regulation during rest in this population. The cardiac autonomic responses to an acute physiological stress might provide additional information on the autonomic dysfunction, serving as a powerful predictor of cardiovascular disease and mortality in patients with CTD.

Objectives: We aimed to use exercise stress echocardiography to detect early right heart dysfunction in patients with CTD and healthy controls.

Methods: Treadmill exercise stress echocardiography was performed in 19 CTD patients (8 systemic sclerosis, 6 mixed CTD and 5 SLE) and 20 healthy volunteers. Parameters of right ventricular (RV) systolic function (RV fractional area change, Doppler tissue s' velocity, and systolic strain and strain rate) and diastolic function (peak E and A velocity, Doppler tissue e', a' and early and late diastolic strain rate) were evaluated at baseline and after exercise, with the difference (Δ) being systolic and diastolic reserve. The immunoblotting assay was performed to detect the levels of rheumatoid factor (RF) and C-reactive protein (CRP) as well as autoantibodies such as, antinuclear antibody (ANA), anti-U1 ribonucleoproteins (U1RNP), anti-dsDNA, anti-Sm, anti-SSA, anti-SSB, anti-SCL-70 and RO-52. The correlation between these proteins and RV function was analyzed.

Results: Both the patients with CTD and healthy controls had a normal range of BMI, total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), and triglyceride (TG). The average age of patients with CTD was 46.0 ± 10.4 years. At baseline, these patients presented no cardiovascular disease or pulmonary hypertension. No significant difference in the body weight, height, age, sex, blood pressure, RV and left ventricular (LV) function at rest between the two groups (all $P > 0.05$). The parameters of RV systolic reserve decreased significantly in CTD group compared to those of the healthy controls ($\Delta s'$: 5.8 ± 2.1 vs $8.3 \pm 2.5 \text{ cm}^{-1}$, $P < 0.01$; Δs_r : 2.5 ± 0.8 vs $2.8 \pm 0.7 \text{ s}^{-1}$, $P < 0.01$). Consistently, RV diastolic reserve was significantly decreased in CTD patients compared to controls ($\Delta e'$: 2.8 ± 1.5 vs $3.9 \pm 2.3 \text{ cm}^{-1}$, $P < 0.05$; $\Delta a'$: 5.8 ± 2.5 vs $10.9 \pm 6.3 \text{ cm}^{-1}$, $P < 0.05$; $\Delta E-S_r$: 0.8 ± 0.2 vs $1.2 \pm 0.5 \text{ s}^{-1}$, $P < 0.05$; $\Delta A-S_r$: 0.9 ± 0.3 vs $1.3 \pm 0.6 \text{ s}^{-1}$, $P < 0.05$). To identify independent predictors of RV function in CTD patients, linear regression was conducted. This suggested that ANA, anti-U1RNP, anti-dsDNA, anti-Sm, anti-SSA, anti-SSB, anti-SCL-70 and RO-52 were not correlated with RV reserve (all $P > 0.05$). A logistic regression analysis revealed that RF ($P < 0.05$) and CRP ($P < 0.01$) were independently associated with RV reserve in CTD patients in response to an acute physiological stress.

Conclusion: Treadmill exercise echocardiography could detect right heart dysfunction early before diagnosed as cardiovascular diseases in patients with CTD. RV reserve after exercise might be a promising parameter to detect cardiovascular disease early in CTD patients.

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Public health, health services research, and health economics

AB1141

EVALUATION OF INFLUENZA AND PNEUMOCOCCAL VACCINATION RATES IN PATIENTS WITH RHEUMATOID ARTHRITIS AND SPONDYLOARTHRITIS, AND THE AWARENESS OF RHEUMATOLOGISTS ABOUT VACCINATION

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Background: Patients with inflammatory arthritis have increased risk of infections which may lead to morbidity and mortality. Some of those infections could be prevented by vaccination.

Objectives: The main objectives of the present study were to investigate (a) the uptake rate of influenza and pneumococcal vaccination among patients with rheumatoid arthritis (RA) and spondyloarthritis (SpA) attending a rheumatology outpatient clinic, (b) the factors associated with their vaccination rate and, (c) the attitudes of Turkish rheumatologists about vaccination.

Methods: Patients, followed-up in a tertiary rheumatology outpatient clinic with the diagnosis of RA and SpA, volunteered for participating to study, were included in this cross-sectional study. Data regarding the socio-demographic and disease-related characteristics (including disease duration, medications used, and comorbid conditions) of the patients, vaccination history, the knowledge about the vaccination, and the factors potentially associated with the uptake of vaccination were collected by face-to-face interview using a standardized questionnaire. 102 out of 345 rheumatologists have participated in a web-based survey.

Results: In total, we collected data from 387 patients (260 with SpA and 114 with RA; 204 [52.8%] female and mean age 46.6 ± 12.7 years). Only 123 (32.3%) of our patients were responded that their disease or treatment might be related to the increased risk for infectious diseases. Influenza and pneumococcal vaccines were administered to 71 (21.4%) and 21 (6.1%) patients, respectively. Vaccination for influenza was recommended by family physicians in 26 patients and by rheumatologists in 12 patients. Rate of influenza vaccination was significantly higher in patients > 65 years ($p = 0.021$) and with any co-morbid conditions ($p = 0.002$). The main reasons reported by patients regarding not to be vaccination were (a) the belief that they did not need the vaccine (49.4% for influenza and 26.2% for pneumococcal vaccine), (b) the absence of recommendation from their physicians (24.1% for influenza and 26.2% for pneumococcal vaccine), (c) fear of adverse event of vaccination (28.8% for influenza and 3.2% for pneumococcal vaccine), and (d) lack of knowledge about vaccination (6.1% for influenza and 12.5% for pneumococcal vaccine). Even though 50% of rheumatologists who responded to the survey were aware of the presence of national vaccination recommendations, all of them stated that patients with inflammatory arthritis need to be vaccinated for both influenza and pneumococcal infections. Influenza and pneumococcal vaccines were administered to 23 (22.5%) and 4 (3.9%) rheumatologists, respectively.

Conclusion: Although the knowledge and awareness about influenza and pneumococcal vaccinations were seemed to be high among rheumatologists, vaccination rates for both were insufficient in RA and SpA patients. There remains significant effort to improve vaccination rates and to prevent morbidity and mortality due to vaccine-preventable infections in inflammatory rheumatic diseases.

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AB1142

TREATMENT COSTS OF SELECTED RHEUMATIC DISEASES IN SUB-SAHARAN AFRICA: A CASE FOR IMPROVED INSURANCE COVERAGE FOR AFRICAN PATIENTS

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Background: Rheumatic diseases lead to substantial economic costs¹ especially in resource-poor settings like sub-Saharan Africa (SSA).² Annual direct cost of lupus treatment ranges from \$13,735–20,926 /patient in the US to £3231(\$4232)/patient in the UK.^{1,3}

Data is rare for SSA and Nigeria in particular where the minimum wage is N30,000 (\$83/mth) with only 5% of citizens covered by health insurance.^{4,5} The scheme excludes some medications and certain procedures are grossly underfunded. Cost-of-illness studies are invaluable in planning and policy development. They typically include: direct, indirect and intangible costs.⁶

Objectives: To compare total costs of some rheumatic diseases, highlight underfunded therapies and push for wider insurance coverage of rheumatic diseases.

Methods: A cross-sectional study from the University of Uyo Teaching Hospital - Nigeria using data of 252 clinic patients (20 lupus, 27 rheumatoid arthritis, 25 gout and 180 osteoarthritis). Direct costs were estimated using the hospital pricelist while indirect costs were estimated using the human capital method. Statistical analysis was done with $p < 0.05$.

Results: Females were the majority except for gout patients (44%). Most lupus patients were unemployed (75%) and had the highest annual total cost (N472,800–2,240,400) compared with the others. Key medications excluded from insurance are shown in table 2.

TABLE 1. COST-OF-ILLNESS COMPARISON OF SELECTED RHEUMATIC DISEASES

	Lupus (n=20)	RA(n=27)	Gout(n=25)	OA(n=180)
Age (years)	33.9 ± 11.4	43.4 ± 14.3	57.4 ± 9.6	59.7 ± 9.1
Female n (%)	24(95)	25(92)	11(44)	157(87)
Average Duration of illness (years)	4(1-11)	3.5(2-10)	3 (0.2-8)	4(0.1-20)
Unemployed n (%)	15(75.0)	19(70.3)	12(48.0)	62(34.4)
Workdays missed/mth	7	5	2	3
Direct costs (N'000)				
Total /mth (stable)	32.4	27	19.75	18
Total /yr (stable)	388.8	324	237	216
Total /mth (severe)	179.7	155.6	32.5	23
Total /yr (severe)	2,156.4	1,867.2	390	276
Indirect costs				
Productivity loss/mth	7	5	2	3
Productivity loss/yr	84	60	24	36
Total costs/mth	39.4 – 186.7	32 – 160.6	21.75 – 34.5	21 – 26
Total costs/yr	472.8 – 2,240.4	384 – 1,927.2	261 – 414	252 – 312

1\$ = 360 Nigerian Naira (NGN), 1€ = NGN 402 as at 31/1/2020. Costs quoted in thousands of Naira.

Table 2. Uninsured treatments.

MMF
Methotrexate
Sulphasalazine
Azathioprine
HCC
Febuxostat
Colchicine
Rituximab
Arthroplasty (N100,000*)
Dialysis (6 sessions)
Renal transplant

Conclusion: Total annual cost of lupus treatment in Nigeria is quite high ranging from (NGN 472,800–2,242,400) [\$1313– 6228] for mild to severe disease. This contrasts with a mean annual national income of \$1,000 given that 75% of lupus

patients are unemployed. Expanded insurance coverage for rheumatic drugs will further reduce the enormous treatment burden and improve outcomes.

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AB1143

BURDEN OF GLUCOCORTICOIDS AMONG RHEUMATOID ARTHRITIS PATIENTS AT DIFFERENT STAGES OF DISEASE-MODIFYING ANTIRHEUMATIC DRUG MANAGEMENT

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Background: EULAR and ACR guidelines recommend a treat-to-target approach for patients with RA including regular assessments of disease activity. Glucocorticoids are commonly used to control inflammation associated with uncontrolled disease. However, patients using glucocorticoids may develop short- and long-term side effects.

Objectives: To examine the real-world use of glucocorticoids among patients with RA who are disease-modifying antirheumatic drug (DMARD)-naïve or failing their first conventional synthetic DMARD (csDMARD) or biologic DMARD (bDMARD).

Methods: From a large US health claims database, this study included adults with ≥2 RA claims ≥30 days apart who started (index date [ID], 1/1/2012–3/31/2017) a first DMARD (DMARD-naïve) or patients who newly initiated a csDMARD and then switched to or added another DMARD (csDMARD switchers), and patients who initiated a first bDMARD and then switched to another bDMARD or Janus kinase inhibitor (JAKi; bDMARD switchers). All patients had continuous enrollment 1-year before and ≥1 year after ID and were evaluated for pre- and post-ID use of glucocorticoids (oral or injectable), prednisone equivalent dose (PED), and duration of exposure ≥30 days.

Results: The study included 28,201 patients in the DMARD-naïve cohort, 7,816 csDMARD switchers, and 4,656 bDMARD switchers (median age 54 years for all, 73%–78% female).

Among DMARD-naïve patients, 66.5% used glucocorticoids during the pre-ID period (Figure 1) and 61.2% had >7.5mg/day PED, 21.2% had >30mg/day PED, and 21.2% had ≥30 days of exposure to glucocorticoids (Figure 2). Post-ID, 69.4% of patients used glucocorticoids, while 54.7% had >7.5mg/day PED, 13.5% had >30mg/day PED, and 44.9% had ≥30 days of exposure to glucocorticoids.

Among csDMARD switchers, 84.5% of patients used glucocorticoids during the pre-ID period (Figure 1), and 73.4% had >7.5mg/day PED, 16.0% had >30mg/day PED, and 56.4% had ≥30 days of exposure to glucocorticoids (Figure 2). During the post-ID treatment, 74.1% of patients used glucocorticoids, 56.2% had >7.5mg/day PED, 14.4% had >30mg/day PED, and 45.8% had ≥30 days of exposure to glucocorticoids.

Among bDMARD switchers, 85.1% of patients used glucocorticoids in the pre-ID period (Figure 1), and 70.2% had >7.5mg/day PED, 17.4% had >30mg/day PED, and 55.2% had ≥30 days of exposure to glucocorticoids (Figure 2). During post-ID treatment, 75.4% of patients used glucocorticoids and 59.7% of patients had >7.5mg/day PED, 16.7% had >30mg/day PED, and 45.6% had ≥30 days of exposure to glucocorticoids.