COMPARISON OF DISABILITY INDICES BY MULTIDIMENSIONAL HEALTH ASSESSMENT QUESTIONNAIRE AND SHORT FORM 36 IN PATIENTS OF RHEUMATOID ARTHRITIS WITH OR WITHOUT FIBROMYALGIA

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Abstract

Background: Rheumatoid Arthritis (RA) is a chronic disabling and deforming autoimmune disease which presents frequently with articular and extra articular features.Fibromyalgia (FM) has been reported in significant number with RA cases. FM has negative impact on health status, functional capacity, and quality of life. Aim of this study is to assess disability indices Multi-Dimensional Health Assessment Questionnaire (MD HAQ) and Short Form 36 (SF-36) in patient of RA with FM in comparison to RA without FM.

Materials and methods: Total 50 patients of RA were enrolled from the Medicine and Physical Medicine Department of Chittagong Medical College Hospital. After clinical evaluation, MDHAQ and SF-36 questionnaires were applied to every patient. Erythrocyte Sedimentation Rate (ESR) and C-reactive Protein (CRP) Rheumatoid Factor (RF) were measured to assess disease activity of RA. FM and RA were diagnosed by American College of Rheumatology Joint count criteria.

Results: Meanage was 51.20 (±8.44) years with male to female ratio 1:1.6.Out of 50 RA patients, 11(22%) were classified having FM predominantly in female.Mean (±SD) Disease Activity Score 28 (DAS 28) were significantly higher in patients with RA and FM (5.74±1.09) than in patients with RA only (4.51±1.41). Median MDHAQ scores were significantly higher in patients with RA and FM than the RA patients without FM. SF-36 scores for quality of life in all aspects is significantly worse in RA patients with FM compared to RAwithout FM.

Conclusions: RA with FMPatients are found to have worse scores on the MDHAQ and SF-36 than RA alone.

Key words

RA; FM; MD HAQ; SF-36; DAS 28; ESR; CRP; RF.

Introduction

Rheumatoid Arthritis (RA) is a chronic systemic inflammatory disease whose major manifestation is synovitis of multiple joints[1]. It has a prevalence of 1% and is more common in women than men (Female: male ratio of 3:1) having peak onset in the fourth or fifth decade for women and the sixth toeighth decades for men[1]. Untreated RA causes joint destruction with consequent disability and shortens life expectancy.There is lacking of population based study to detect the RA burden in Bangladesh. Small scale study indicates the prevalence of RA was 1.6%[2]. Fibromyalgia (FM) is a chronic pain disorder characterized by widespread musculoskeletal pain and concomitant somatic symptoms such as fatigue, cognitive disturbance, disruption of sleep and psychiatric symptoms, for which no other cause is identified[3]. FM has a significant impact on health status, functional capacity, and quality of life[4-8]. In patients with RA, concomitant FM has been found in 14–17% of cases and may indicate an additional factor that worsens pain and physical, social and emotional limitations in these patients[9,10]. In 2012 the American College of Rheumatology (ACR) published recommendations on 6 RA disease activity measures[11]. MDHAQ was developed for assessment of functional status for use in rheumatic disease like RA, FM Short Form-36 is a multidimensional instrument used extensively in RA and FM research[12,13,14]. Present study is conducted to analyze whether association of FM has any influence in MD HAQ and SF-36 scores in patient of RA in our setting.

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Materials and methods

This descriptive cross-sectional study was done on RA patients attending Medicine & Physical Medicine outdoor and admitted in Department of Medicine, Chittagong Medical College Hospital (CMCH) from 01/11/2019 to 30/06/2019.

Inclusion criteria

i) Patients of RA diagnosed by ACR 2010 criteria who are seropositive[15,16].

Exclusion criteria

i) Patients with comorbidities like Chronic Kidney Disease, Heart Failure, and ChronicObstructive Pulmonary Disease etc

ii) Other Rheumatologic disease like Systemic Lupus Erythematosus, Osteoarthritis and Overlap syndrome, Mixed Connective Tissue Disease

iii) RA with pregnancy, psychiatric disorder

iv) Unwilling to give written informed consent.

50 patients were recruited by ACR 2010 classification criteria after getting approval from the Ethical Review Committee of CMCH and Research and Training Monitoring Department of Bangladesh College of Physicians and Surgeons. After taking informed consent patients were grouped into RA with Fibromyalgia and RA without Fibromyalgia. Demographic, clinical and therapeutic aspects of the patients were recorded in case record form. Five ml of blood was sent to laboratory for ESR, CRP, RA test and Anti CCP. Interviewer-administered MD HAQ of 10 items questionnaire was served. A score was assigned to each of the category. If the category score was lower than 2, it was increased to 2 in any category if patient used a device or took help from another person. Validated SF-36 questionnaire was then applied and scored accordingly. Data were compiled in a Microsoft Office Excel Worksheet. They were fed into SPSS (Statistical Package for Social Science) for Windows version 23 software to process and analyze the data. The mean ± Standard Deviation (SD) of the continuous variables was calculated.Socio-demographic variables and clinical characteristics were assessed by multi variant analysis. Chi squared test and t test were applied for data analysis. p value was considered statistically significant if less than 0.05.

Results

Among 50 RA patients, 11 were RA with FM. Mean (±SD) age was 51.20±8.44 years. There were 31 (62%) women and majority of them were married (98%) (Table I).

Table I : Socio-demographic characteristics of the study patients (n=50).

Characteristics		Frequency (Percentage)
Age (Years)	Mean ±SD	51.20±8.44
	Range	36-70
Sex	Male	19 (38)
	Female	31 (62)
Residence	Urban	21 (42)
	Semi-urban	23 (46)
	Rural	6 (12)
Education	Primary	1 (2)
	SSC	17 (34)
	HSC	25 (50)
	Graduate	7 (14)
Marital status	Married	49 (98)
	Unmarried	1 (2)
Religion	Islam	37 (74)
	Hindu	13 (26)
Ethnicity	Bangali	48 (96)
Monthly income	<20000 BDT	5 (20)
	20000-50000BDT	26 (52)
	>50000 BDT	19 (38)

All 50 RA patients were positive for RA factor and Anti CCP. Mean disease duration were 4.59±2.90 years. Half of them were taking only MTX and majority (98%) were receiving steroid (Table II).

Table II: Clinical characteristics of the study patients (n=50).

Characteristics		
RA duration (Years)	Mean ±SD	4.59±2.90
	Range	1.00-18.00
RA factor	Positive	50 (100)
ACPA	Positive	50 (100)
Treatment Duration (Years)	Mean ±SD	4.39±2.83
	Range	0.90-17.00
No. of drug taking	Mean ±SD	2.00 ±0.61
	Range	1-3
No. of DMARD taking	Mean ±SD	1.54±0.50
	Range	1-2
Receiving steroid		49 (98)
DMARD type	MTX	25 (50)
	MTX+HCQ	14 (28)
	MTX+SLZ	7 (14)
	Others	4 (8)
Extra-articular manifestation	Present	14 (28)

Data are expressed as frequency (Percentage) if not otherwise mentioned.

Patients of RA with or without FM were similar in disease duration, duration of treatment, number of currently taking total drug or DMARD (Table III).

Table III : Comparison of the clinical characteristics between RA patients with and without FM.

Characteristics	RA (n=39)	RA+FM (n=11)	p value
RA duration (Years)	4.60±3.18	4.54±1.63	0.901
RA factor positive	39 (100)	11 (100)	NA
ACPA positive	39 (100)	11 (100)	NA
Treatment Duration (Years)	4.40±3.11	4.31±1.58	0.912
No. of drug taking	1.93±0.58	2.27±0.65	0.092
No. of DMARD taking	1.49±0.51	1.73±0.47	0.107
Receiving steroid	39 (100)	10 (90.9)	0.220
Extra-articular manifestation	11 (38.2)	3 (27.3)	0.142

NA: Not Applicable. Data are expressed as either frequency (Percentage) or mean ± SD. P values were obtained by either independent sample t test or Chi-square test as appropriate.

Patients with RA had higher ESR, RA titre, and CRPvalue than RA with FM (Table IV).

Table IV : Comparison of laboratory parameters between RA patients with and without FM.

Characteristics	RA (n=39)	RA+FM (n=11)	p value
ESR (mm of Hg)	66.10±10.93	36.55±6.50	<0.001
RA titer	48.08±19.04	26.91±3.30	<0001
CRP	29.59±7.22	16.91±3.75	<0.001

Data are expressed as mean ± SD. P values were obtained by independent sample t test.

Median value of MDHAQ was notably higher in RA with FM. Quality of life was significantly worse in RA patients with FM in all aspects compared to RA without FM (Table V).

Table V: Comparison of MDHAQ and SF-36 scores between RA patients with and without FM.

Characteristics	RA (n=39)	RA+FM (n=11)	p value
MDHAQ	2 (2-2)	3 (3-3)	<0.001
SF-36			
Physical functioning	60 (55-70)	50 (45-55)	0.003
Role limitation	60 (50-70)	50 (30-55)	0.002
Physical role	66 (50-66)	45 (33-55)	0.001
Mental role	70 (60-75)	60 (50-60)	0.004
Vitality	70 (60-75)	54 (44-65)	0.002
Mental health	68 (60-75)	50 (45-60)	0.001
Social functioning	68 (55-77)	45 (45-60)	0.003
General health	64 (55-75)	40 (40-60)	<0.001

Data are expressed as median (Interquartile range). p values were derived from Mann-Whitney U test.

Discussions

Presentstudy was conducted to assess the disability indices (MD HAQ and SF-36) in patient of RA with concomitant FM in comparison to RA without FM. In this study, RA with FM had lower mean age with female predominance which is consistent with FM epidemiology[10,15]. Patients of RA and RA with FM were similar in monthly income, disease duration, duration of treatment, number of currently taking total drug or DMARD. RA patients in both groups are positive for RA factor and ACPA. Patients with RA and FM had a median MDHAQ score of 3.0 compared with 2.0 for RA without FM, this difference seems relevant because a variation of 0.22 is considered clinically important[16]. FM itself can reduce the functional capacity similar to that observed in RA[17]. We found ESR and CRP was higher in RA than RA with FM which is reported by other study[18,19]. In the present study, all components of the SF-36 were negatively affected by the presence of FM, indicating the worse quality of life in this group. These results are similar to those obtained by Wolfe and Michaud[9]. This result suggest that the SF-36 allows a differentiation of subgroups in RA patients in terms of psychological impairment.In routine clinical practice, misclassification of disease activity may lead to an unnecessary change in the therapy of RA. It may affect the selection of patients inclinical trials, because high ESR and CRP is frequently used as one of the inclusion criteria. The interpretation of results may also be affected, considering that FM symptoms are not expected to respond to therapeutics directed toward RA. Interesting Data from this study demonstrates worse HAQ and SF-36 scores in patients of RA with FM group in spite of comparatively lower ESR and CRP. A number of studies have shown that RA patients with fibromyalgia, having widespread pain with soft tissue tenderness, tend to have higher disease activity scores despite less objective evidence of active inflammatory disease[18]. When evaluating and monitoring patients with RA, the presence of associatedFM should be considered.

Limitations

i. Sample size was small so the results cannot be generalized to overall population.
ii. Single center study.

Conclusion

In this Study RA with FM has significantly higher disease activity and functional disability in comparison to patients of RA. In this region of Bangladesh further large scale study is needed to conclude it.

Recommendations

In the light of the present study findings, the following recommendations are put forward:
i. On evaluation of RA patients having worse MDHAQ & SF 36, clinician should exclude associated FM.
ii. Further prospective study with a large sample should be carried out.

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Contribution of authors

MHH-Conception, acquisition of data, drafting and final approval.
MSU- Design, analysis, interpretation of data and final approval.
MAR- Acquisition of data, drafting and final approval.
AB-Interpretation of data, critical revision and final approval.

Disclosure

All the authors declared no competing interests.

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