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Spectrum of Rheumatological Disorders: A Clinic-based Study

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Abstract

Objectives: *To assess the prevalence and distribution of rheumatic diseases at rheumatology clinic in a tertiary level hospital.*

Methods: *This retrospective study was done at rheumatology clinic of BIRDEM from July 2009 to December 2012. Diagnoses were reached by using clinical criteria supplemented by necessary investigations.*

Results: *Total number of patients was 772 with female predominance (F:M ratio of 1.3:1). Mean age was 46.9 (range 13-83) years. Majority (85.9%) were in 3rd to 6th decades. Degenerative diseases (49.9%) were most common, followed by inflammatory conditions (33.5%), soft tissue rheumatism (7%), metabolic bone disease (4.8%) and connective tissue diseases (2.5%). Rheumatoid arthritis (27.7%) was the most prevalent disease, followed by osteoarthritis of knees (26.2%) and lumber spines (23.4). Tendinitis, osteoporosis, fibromyalgia and systemic lupus erythematosus prevailed in 5.6%, 4.8%, 1.4% and 1.3% cases respectively. Common comorbidities were diabetes mellitus (87.9%), hypertension (22.2%), ischaemic heart disease (12.4%), dyslipidaemia (10.1%), fatty liver (7.9%), chronic kidney disease (6.9%) and hypothyroidism (4.5%). Commonly prescribed medications were non-steroidal anti-inflammatory drugs (93%), disease modifying anti-rheumatic drugs (28.9%) and prednisolone (10.6%). Physiotherapy was required in 13.3% cases. In 56.6% cases various combination of treatment was required. In 12% patients receiving methotrexate, adverse effects occurred.*

Conclusion: *Degenerative joint and spine diseases were more common but as an individual disease rheumatoid arthritis was the most prevalent condition.*

Key words: *prevalence, rheumatological diseases, rheumatology clinic.*

Introduction

Rheumatology includes a large variety of diseases, not only inflammatory rheumatic and systemic diseases but also degenerative joint and spine diseases, soft tissue rheumatism and metabolic bone diseases.[1] The rheumatism is a common name for many pains and aches, which have yet no peculiar appellation, though owing to very different causes.[2] Rheumatic diseases are a common cause of disability and a large public health burden.[3] In the United Kingdom, upto 1 in 4 new consultation in general practice is for musculoskeletal symptoms.[4]

Most musculoskeletal conditions predominate in women and show an strong association with ageing.[5] Rheumatological disorders are the single most common cause of physical disability in the elderly and around one third of all people with physical disability have rheumatologicalaetiological disorder as the primary cause.[6] The rheumatological diseases remain a clinically challenging but satisfying group of disorders for internists to manage.[7] The advent of modern laboratory and imaging techniques has greatly increased the incidence of diseases but clinical diagnosis based on criteria specific to each rheumatological disorder still remains the sine qua non.[8]

The prevalence of rheumatological disorders vary considerably depending on environmental factors, ethnicity and even over times within the same geographic area among the same ethnic origins.[9-11] In the United States, the incidence of rheumatoid arthritis (RA) progressively declined since early 1960s, while the prevalence of gout doubled from 1969 to 1985 and it further increased by 80% from 1990 to 1999.[11] In a COPCORD (Community Oriented Program for Control of Rheumatic Disorders) study it was seen that rheumatic disorders were common causes of morbidity, disability and work loss in Bangladeshi rural and urban communities.[12] This current study describes the spectrum of rheumatological disorders encountered in the newly established rheumatology clinic of Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM), started from July 2009 and run by a team comprising Internists and Rheumatologists, Physical Medicine Specialist and Orthopaedic Surgeons.

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Methods and aims

This retrospective study was done at the rheumatology clinic of BIRDEM from July 2009 to December 2012 with the aims to describe the pattern of rheumatologic disorders in patients attending the clinic, to describe specific types of rheumatic disorders, to evaluate the prevalence of auto-immune markers in inflammatory rheumatic and connective tissue disorders and to observe adverse effects of drugs used in these patients.

Patients

All patients attending the rheumatology clinic were consecutively and purposively included in this study irrespective of age and sex. Most of the patients were referred cases from outpatient departments of BIRDEM and some patients came for follow up after being discharged from the inpatient departments. Patients having non-rheumatological diagnosis or incomplete data were excluded from the study.

Diagnosis

Clinical diagnoses/ differentials were reached from comprehensive history and clinical examinations supplemented by appropriate laboratory investigations. Various diagnostic criteria were used for making a diagnosis; for example when we start the clinic, we used American Rheumatism Association (1988) Revision Criteria for RA, but after the introduction of ACR/EULAR (2010) Criteria for RA, we adopted this newer classification criteria in our clinic. Those patients who were already diagnosed and were on treatment for RA by registered physicians, we reevaluated the previous clinical and laboratory documents, if available and took them as having RA. Modified New York (1984) criteria was used for ankylosing spondylitis (AS). Systemic lupus erythematosus (SLE) was diagnosed by using revised American Rheumatism Association Criteria for systemic lupus erythematosus. We used Kahn criteria for mixed connective tissue diseases (MCTD). For polymyositis, dermatomyositis and systemic sclerosis, appropriate clinical features, muscle/ skin biopsy and autoantibodies helped in confirmation of diagnosis. Appropriate clinical presentation and presence of negative birefringence crystals in polarized light microscopy of synovial fluid with or without a high serum uric acid levels were used for diagnosing gout.

Laboratory investigations

Appropriate laboratory investigations were used for confirmation of the diagnosis, assess disease severity, rational planning and modification of treatment when necessary particularly at subsequent visits. For example, rheumatoid factor (RF) was used in diagnosing RA and it was detected by NEPHELOMETRY method with a normal value of <8 IU/ml. Another important marker for RA was anti-CCP antibody, which was detected by MEIA using kit Abbott, USA and any value ≥5U/ml was taken as positive. HLA B-27 serotype was detected by Microlymphocytotoxicity assay using kit One Lambda, USA. Antinuclear antibody (ANA) and anti ds-DNA were detected by ELISA. Kits used for ANA was DIA.PRO, Italy and the ratio of sample: control of >1.1 was taken as positive. DIA.PRO, Italy kit was used for anti ds-DNA and any value >25IU/ml was taken as positive. For extractable nuclear antigen (ENA) profile (included anti-SSA, anti-SSB, anti-Sm, anti-RNP, anti-Scl 70 and anti-Jo), ELISA method was adopted and kit used Orgentec Diagnostika GmbH, Germany and a cut off value of > 25 U/ml was taken as positive.

Data collection and analysis

All the necessary data were recorded in a preformed data sheet from the patients' rheumatology guide book and clinic registry. Data were analyzed by using SPSS version 12.0 and presented in figures and tables.

Results

A total of 804 patients attended 2491 times over three and half years at the rheumatology clinic. Thirty two patients were excluded from the study because of incomplete data, non-rheumatological diagnoses or some other reason. So, finally 772 patients were included in this study. Patients visited rheumatology clinic on an average 3.1 times over the study period, but frequency was more in inflammatory arthritis particularly in RA (7.2 times). Female were 436 and male 336, female: male ratio was 1.3:1. Their mean age was 46.9±11.3 (range 13-83) years. Most (85.9%) of the patients were in 3rd to 6th decades. Distributions of the patients according to the age are shown in figure 1.

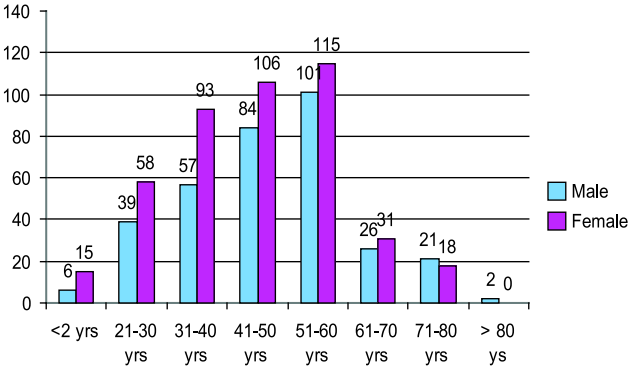

Fig.-1: *Age and sex distribution of the patients*

Patients were divided into 6 groups (Table I). Degenerative joint and spine diseases (49.9%) was the commonest followed by inflammatory disease (33.5%). Table I shows common diseases in each group with their frequency and sex ratio. RA (27.7%) was the commonest diagnosis followed by osteoarthritis of knee (26.2%) and lumber spine (23.4%). Prevalence of immunological markers in inflammatory and connective tissue disorders are shown in table II.

Table I

Distribution of patients according to diagnoses

Diagnoses	Number of patients	Percent of all patients	Sex distribution (F:M)
Inflammatory joint and spine diseases	259	33.5	1.8:1
Rheumatoid arthritis	214	27.7	2.5:1
Ankylosing spondylitis	17	2.2	1:3.3
Psoriatic arthritis	12	1.5	1:1.4
Gout	16	2.1	1:1.3
Degenerative joint and spine diseases	385	49.9	1:1
Knee osteoarthritis	202	26.2	1:1.1
Lumber spondylosis	181	23.4	1:1.5
Cervical spondylosis	76	9.8	1:1.4
Nodal osteoarthritis	2	0.2	2:0
Connective tissue diseases	19	2.5	8.5:1
Systemic lupus erythematosus	10	1.3	10:1
Polymyositis/ Dermatomyositis	5	0.6	1.5:1
Systemic sclerosis	2	0.2	2:0
Mixed connective tissue disease	2	0.2	2:0
Soft tissue rheumatism Fibromyalgia	5411	71.4	1.1:14.5:1
Tendinitis	43	5.6	1:1.3
Metabolic bone diseases Osteoporosis	37	4.8	2.1:1
Others	18	2.3	
Septic arthritis	4	0.5	1:3
Haemophilic arthritis	2	0.2	2:3
Tubercular arthritis	5	0.6	0:2
Undifferentiated arthritis	7	0.9	1:2.5

Diabetes mellitus was the commonest (87.9%) comorbidity in this study, followed by hypertension, chronic kidney disease, ischaemic heart disease (Table III).

Table II

Prevalence of immunological markers in inflammatory and connective tissue disorders

Disese	Marker	Done in	Positive	Percent
RA	RFAnti-CCP Ab	19496	13269	6872
AS	HLA B27	12	8	67
SLE	ANAAnti-dS DNA	1010	107	10070
PSS	Anti Scl 70	2	2	100
MCTD	Anti-RNP Ab	2	2	100

Table III

Common comorbidity of the study population

Comorbidity	Frequency	Percent
Diabetes mellitus (DM)	679	87.9
Hypertension	171	22.2
Ischaemic heart disease (IHD)	96	12.4
Chronic kidney disease (CKD)	53	6.9
Chronic obstractive pulmonary disease (COPD)	21	2.7
Hypothyroidism	35	4.5
Dyslipidaemia	78	10.1
Fatty liver	61	7.9

Ninety three percent patients received non-steroidal anti-inflammatory drugs (NSAIDs), 28.9% disease modifying anti-rheumatic drugs (DMARDs), 10.6% prednisolone, 13.3% physical therapy and among them 56.6% required a various combinations at least at the beginning.

In 17 patients methotrexate (MTX) had to be stopped because of elevation of ALT and in another 9 patients because of mucositis and pancytopenia. In one patient with AS reversible azospermia occurred due to sulphasalazine. No serious NSAIDs related adverse effect was reported.

Discussion

The prevalence of rheumatological disorders in developing countries is largely unknown. In the current study, we have tried to describe the hospital prevalence of different rheumatological diseases in Bangladeshi population, though it may not reflect the true prevalence as in COPCORD studies.

Total number of patients was 772 with a female predominance (F:M ratio 1.3:1). In a similar clinic based study in Belgium, 69% patients were female.[13] Mean age was 46.9 years (13-83). In Belgium mean age was 54 years.[13] From two different rheumatology clinic registries in Dhaka, similar demographic pattern of patients was observed (though it was un-published data).

Degenerative joint disease was the most prevalent (49.9%) group in this study, followed by inflammatory joint and spine disease (33.5%), soft tissue rheumatism (7%), connective tissue disease and metabolic bone disease. In one clinic based study in Nepal, frequency of diseases were as follows: soft tissue rheumatism (40%), inflammatory arthritis (21.36%), bone and cartilage diseases (21.06%), connective tissue diseases (4.74%) and metabolic bone diseases (3.85%).[7]Vanhook et al. found inflammatory joint and spine disease in 37%, soft tissue rheumatism in 37%, degenerative joint and spine diseases in 36%, metabolic bone diseases in 17% and connective tissue diseases in 5% cases.[13]

Knee joint OA was the commonest degenerative disease in this study followed by lumber spondylosis. Knee joint OA was commonest in Nepal and Pakistan.[7,14] In contrast, OA of spine was commonest in Belgium.[13] In our study, majority of patients had DM, they were overweight or obese, elderly and they suffered from OA.

Among the inflammatory conditions, RA (82.6%) was the commonest disease followed by AS. RA was the commonest inflammatory arthritis in other studies. [7,13,15,16] In current study F: M ratio for RA patients was 2.5:1, in Nepal it was 8.7:1, in Belgium 2.3:1.[7,13] AS prevailed in younger male patients. Gout occurred in 2.1% cases and all of them were obese and had CKD as risk factor. Risk factors for gout in Nepal were hypertension, obesity, dyslipidaemia and impaired glucose tolerance.[7]

Soft tissue rheumatism was less common in our study and they were mostly related to DM. Fibromyalgia (FM) was diagnosed in 1.4% cases in this series. On the other hand, FM was found in 19.88% in Nepal and 10% in Belgium etc.[7,13] Social and economic conditions were the contributory factors in Nepal, whereas psycho-social and alcohol related factors were considered in western societies.[7]

SLE was the commonest connective tissue disease. Dermatomyositis, PSS and MCTD were diagnosed in 3, 2 and 2 cases respectively. One patient had secondary anti-phospholipid syndrome. SLE was present in 1.3% cases. It was 0.89% in Nepal,[7] 0.06% in Hong Kong.[17]

Osteoporosis was present in 4.8% cases, which is far low than other studies.[7,13,16] One possible explanation for this reason might be that, being an specialized endocrine hospital, many osteoporosis cases are managed by endocrinologists.

Commonest comorbidity was DM, followed by hepertension, IHD, CKD. COPD was the commonest comorbidity in Nepal, reflecting high smoking rate among Nepali population.[7]

NSAIDs were the most frequently prescribed medication. Ten percent patients required corticosteroids. All RA patients received DMARDs mostly MTX along with folic acid supplementations. Similar prescribing pattern was observed in Nepal and Pakistan.[7,14] In 1 case, tocilizumab was given with significant improvement, but she discontinued because of higher cost. A major portion of patients, mostly with soft tissue rheumatism received various forms of physical therapy.

No major drug related side effect was observed in this study, except rise of ALT, mucositis and bone marrow suppression in 26 cases. These patients were taking MTX erroneously on a daily basis or for long time without any follow up.

This study had some limitations. The prevalence does not represent the true prevalence among Bangladeshi population. Here most patients were diabetic, whether rheumatoligical disorders are similarly distributed among non-diabetic populations were not also clear. So, larger and multi-center survey may be done in future.

Conclsion

From this retrospective study it can be concluded that, degenerative diseases are more common than inflammatory disorders and RA is the most common disease in this series that require life-long follow up for proper disease control and to avoid drug related adverse effects.

Conflict of Interest : None

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