ORIGINAL ARTICLE

Assessment of Cardiac Risk Factors and Socio Demographic Feature of Rheumatoid Arthritis in Bangladesh

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Abstract:

Patient with Rheumatoid Arthritis(RA)shows an increased risk of cardiovascular diseases. This study was to find out cardiac risk factorsand socio demography related with Rheumatoid Arthritis in hospital Bangabandhu Sheikh Mujib Medical University (BSMMU)from July 2014 to December 2015. The present study, among 384 RA patients, mean age of the patients was 42.54±1.22 years whereas 32% represented from 41-50 years. Most of the patients (82.6%) were female.Regarding education more than half of the patients (57.8%) completed primary education followed by illiterate (12.5%), secondary (12.8%), higher-secondary (8.9%) and graduation (8.1%). About 71.1% were housewife followed by service holder (14.6%), business (3.1%), student (2.1%) and farmer (2.1%). Mean yearly income was 133341.14±105056.94 BDT. Almost 95.1% were married. Mean age of disease onset was 35.53±10.89 years where minimum age of disease onset was 17 years and maximum was 61 years. About 29.2%, 28.4% and 24.7% patients started disease within 31-40 years, 21-30 years and 41-50 years respectively.82% patients had no extra articular manifestations. About 13%, 1.8%, 1% patients had musculoskeletal, hematological and systemic manifestations as well.77.9% patients had no co-morbidity conditions. About 10.4%, 3.1%, 1.8% and 1.3% patients had hypertension, diabetes mellitus, hypothyroidism and ischemic heart disease as well.Cardiac risk factors were found in RA such as hypertension, diabetes mellitus, hypothyroidism and ischemic heart disease respectively.

Introduction:

Rheumatoid arthritis (RA) is a chronic inflammatory disease with high prevalence. Approximately 1% of the adult population is affected by RA worldwide.[1] It negatively affects patient's quality of life, function, and life expectancy.[2]The prevalence is about 2.5 times higher in females than males and the age of onset was middle age. [3,4] The clinical course is prolonged, with intermittent exacerbations and remissions. Patients with RA have an increased risk of cardiovascular diseases. This is most marked in those with severe disease, with a reduction in expected life span by 8-15 years. Around 40% of RA patients are registered as disabled within 3 years of onset and around 80% are moderately to severely disabled within 20 years. Functional capacity decreases most rapidly at the beginning of diseases and the functional status of patients within their first year of RA is often predictive of long term outcome. Factors that associate with a poorer prognosis are disability at presentation, female gender, involvement of MTM joints, radiographic damage at presentation, smoking and a positive RF or ACPA.[5] Pathology includes new formations of blood vessels, inflammatory cell infiltration and synovial proliferation. Abundant production of proteolytic enzymes such as metalloproteases, and inflammatory cytokines including tumor necrosis factor –(TNF-) and interleukin -6 (IL-6) causes cartilage breakdown and bone destruction which lead to irreversible functional disability .In addition,

chemokines produced in situ promotes recruitment of inflammatory cells in the joints.[6] Assessment of cardiac risk factors and socio demography of RA was done in this study.

Subjects and Methods:

This observational cross-sectional study was conducted in the out-patient department of Rheumatology and indoor of Internal Medicine & Rheumatology department of Bangabandhu Sheikh Mujib Medical University from July 2014 to December 2015. Non probability purposive sampling was done in all the patients of RA attending at outpatient department of Rheumatology and indoor of Internal Medicine & Rheumatology department and who fulfill the inclusion criteria.

Sample Size

The sample size was determined by following formula

$$n = \frac{Z^2 pq}{d^2}$$

$$So, n = \frac{(1.96)2 \times 50 \times 50}{5^2} = 384$$

Selection Criteria:

A. Inclusion criteria

• Patients fulfilling American College of Rheumatology (ACR) 2010 criteria for rheumatoid arthritis

• Age-18 to 70 years

• Patients (Male & Female) receiving stable therapy for at least 3 months

B. Exclusion criteria

• Age <18, and > 70 years

• Not willing to participate in the study

After approval of the study protocol by IRB patients with RA attending Rheumatology OPD, Rheumatology and Medicine indoor department of BSMMU was recruited as per inclusion criteria. All the patients of RA who will fulfill the American College of Rheumatology criteria-(ACR) 2010 within my study period was selected purposively from the following sources (1) Patient attending Rheumatology OPD coming from periphery having diagnosis of RA. Demographic profiles of patients along with history of associated medical or surgical illness

were recorded on the data collection sheet. Data will be analyzed by SPSS-21 version.

Operational Definitions:

American College of Rheumatology (ACR- 2010) criteria for the rheumatoid arthritis:

Criterion	Score
Joints affected	
1 medium to large joint	0
2-10 medium to large joints	1
1-3 Small joints (with or without involvement of large joints)	2
4-10 Small joints (with or without involvement of large joints)	3
>10 joints (at least or small joint)	5
Serology	
Negative RF and ACPA	0
Low positive RF or ACPA	2
High positive RF or ACPA	3
Duration of symptoms	
< 6 wks	0
> 6 wks	1
Acute phase reactants	
Normal CRP and ESR	0
Abnormal CRP or ESR	1

Patients with a score e" 6 are considered to have definite RA

Results:

Table I shows mean age of the patients was 42.54±1.22 years whereas 32% represented from 41-50 years. Most of the patients (82.6%) were female. Regarding education more than half of the patients (57.8%) completed primary education followed by illiterate (12.5%), secondary (12.8%), higher-secondary (8.9%) and graduation (8.1%). About 71.1% were housewife followed by service holder (14.6%), business (3.1%), student (2.1%) and farmer (2.1%). Mean yearly income was 133341.14±105056.94 BDT. Almost 95.1% were married.

Table II shows that mean age of disease onset was 35.53±10.89 years where minimum age of disease onset was 17 years and maximum was 61 years. About 29.2%,

28.4% and 24.7% patients started disease within 31-40 years, 21-30 years and 41-50 years respectively.

Table-I

Socio-demographic characteristics of patients (n=384)

Variables	Number	Percentage
Age (in years)		
<30	79	20.6
31-40	99	25.8
41-50	123	32
51-60	53	13.8
>61	30	7.8
Mean±SD	42.54±1.22	
Sex		
Male	67	17.4
Female	317	82.6
Education		
No schooling/illiterate	48	12.5
Primary	222	57.8
Secondary	49	12.8
Higher-secondary	34	8.9
Graduate	31	8.1
Occupation		
Labor	2	1.6
Farmer	8	2.1
Driver	7	1.8
Garments worker	1	0.3
Service holder	56	14.6
Retired	3	0.8
Housemaid	7	0.8
Housewife	273	71.1
Business	13	3.1
Student	8	2.1
Others	2	0.5
Yearly income(BDT)		
<60000	44	11.5
61000-100000	115	29.9
>100001	225	58.6
Mean±SD	133341.14±105056.94	
Marital status		
Single	16	4.2
Married	365	95.1
Separated	3	0.8

Table-II

Age of disease onset of patients (n=384)

Variables	Number	Percentage
Age of disease onset (in years)		
<20	43	11.2
21-30	109	28.4
31-40	112	29.2
41-50	95	24.7
51-60	24	6.2
>61	1	0.3
Mean±SD	35.53±10.89	
Minimum	17	
Maximum	61	

Table III shows 82% patients had no extra articular manifestations. About 13%, 1.8%, 1% patients had musculoskeletal, hematological and systemic manifestations as well.

Table-III

Extra articular manifestations of RA (n=384)

Variables	Number	Percentage
Extra articular manifestations		
Systemic	4	1
Musculoskeletal	50	13
Hematological	7	1.8
Respiratory	2	0.5
Vasculitis	2	0.5
Musculoskeletal+vasculitis	4	1
Absent	315	82

Table IV shows 77.9% patients had no co-morbidity conditions. About 10.4%, 3.1%, 1.8% and 1.3% patients had hypertension, diabetes mellitus, hypothyroidismand ischemic heart disease as well.

Table-IV

Cardiac risk factors of patients with RA in Bangladesh (n=384)

Variables	Number	Percentage
Diabetes mellitus	12	3.1
Hypertension	40	10.4
Ischemic heart disease	5	1.3
Hypertension+Ischemic heart disease	1	0.3
Diabetes+Hypertension	7	1.8
Hypertension+Respiratory+ Kidney disease	1	0.3
Hypothyroidism	6	1.8
No risk factor	299	77.9

Discussion:

Primary objective of the study was to find out cardiac risk factors related with Rheumatoid Arthritis in tertiary care hospital. The present study found mean age of the patients was 42.54±1.22 years whereas 32% represented from 41-50 years. Most of the patients (82.6%) were female. The finding of the prescription pattern study conducted in a tertiary care hospital, Mumbai, gave us a snapshot of the demographic data. Majority of the patients were females and the age of onset was middle age.[4] Rheumatoid arthritis is one of the major chronic inflammatory diseases that predominate in females. The prevalence is about 2.5 times higher in females than males.[3] Recent study conducted by Mittal et al., in India has reported that more than 80% of the RA patients were females which were similar with our study. Actually high prevalence of RA in females observed compared to developed countries is probably due to cultural and ethnic diversity, especially concerning occupation and living conditions. Regarding education more than half of the patients (57.8%) completed primary education which may be create problem in terms of understanding of drug therapy for long period. Arthritis of joints involves inflammation of the synovial membrane. Joints become swollen, tender and warm, and stiffness limits their movement. With time, multiple joints are affected (it is a polyarthritis). Most commonly involved are the small joints of the hands, feet, but larger joints like the shoulder and knee can also be involved.[7] In this study 77.9% patients had no risk factor. About 10.4%, 3.1%, 1.8% and 1.3% patients had hypertension, diabetes mellitus, hypothyroidism and ischemic heart disease as well. Cardiovascular disease (IHD), in particular ischaemic heart disease is more common among people with RA.[8] It is unclear whether the risk of IHD is before the disease or results from it; a Rochester Epidemiology Project study found that people with RA were more likely to have a hospitalization because of myocardial infarction (MI) prior to diagnosis. However, two longitudinal cohort studies have found no difference in presence of MI, congestive heart failure or angina prior to diagnosis of RA. People with RA have greater evidence of subclinical atherosclerotic disease and risk of silent MI.[8,9] A 2015 study found that risk of IHD rising with increasing levels of disease activity.[10] It is unknown whether the increase in IHD mortality is due to the disease, the risk factor profile of people with RA (e.g., presence of hypertension, more likely to be smokers).

Conclusion:

Most of the RA patients were female and disease onset was middle age in this population. Cardiac risk factors were found in RA such as hypertension, diabetes mellitus, hypothyroidism and ischemic heart disease.

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