STUDENT ORIGINAL ARTICLE

Factors associated with time to presentation of patients to rheumatology clinics at the National Hospital of Sri Lanka

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Abstract

Background

Delay in diagnosis of rheumatic diseases is associated with less favorable outcomes. However, there is paucity of local data on diagnostic delay. Therefore, the aim of this study was to describe factors associated with time to presentation of patients to rheumatology clinics at the National Hospital of Sri Lanka (NHSL).

Methods

A descriptive cross-sectional study was conducted at the three rheumatology clinics of NHSL. A total of 120 patients whose first presentation to the clinics had been within 6 weeks period to the date of data collection were recruited using systematic sampling. An interviewer administered questionnaire was used. Patient delay, healthcare delay and total delay were the three main aspects of delays considered.

Results

The median total delay in presentation was 12 months, patient delay was 6 months and healthcare delay was 6 months. Increasing age (p=0.013), high monthly income (p=0.007) and patients diagnosed with rheumatoid arthritis (p=0.018) showed a significant positive association with delay in presentation while mechanical backache (p=0.022), neck pain (p=0.044) and systemic lupus erythematosus (p=0.044) showed negative association with delay in presentation. Gender, education level, pattern of joint involvement and health seeking behaviors were not associated with delay.

Conclusion

There was a significant delay in presentation of the overall study population to the rheumatology clinics. Increasing age, high monthly income and patients diagnosed with rheumatoid arthritis was associated with delayed presentation.

Background

Rheumatic diseases are a leading cause of disability in the world. In people aged 60 years and above, more than half of all their chronic conditions fall into the category of rheumatic diseases [1]. Even though the disease burden is high, they don't receive the same attention as other chronic diseases. This hinders optimal care as it depends on early access to rheumatologists [2].

The concept of "window of opportunity" for treatment, which is 12 weeks after disease onset, states the presence of a favourable therapeutic outcome if treatment is started within 12 weeks. Patients assessed 12 weeks after symptom onset have higher rates of joint destruction and higher probability of not achieving disease-modifying anti-rheumatic drugs (DMARDs) free remission. Therefore, early initiation of treatment with good compliance can minimise joint destruction and disability and DMARD-free remission [3].

There is limited data on musculoskeletal disorders in Sri Lanka. According to the National Survey on Self-reported Health in Sri Lanka (2014), 11.4% of the total self-reported diseases were arthritis, with a prevalence of 1.3% and 2.7% among males and females respectively [4]. In a study conducted at the Leiden Early Arthritis Clinic, the outcome of late diagnosis of arthritis was assessed. The delay was categorised as patient delay, general practitioner (GP) delay and total delay. The mean patient delay (time taken by the patient to come to a GP after symptom onset) was 2.4 weeks. The mean GP delay (time taken for the patient to be seen by a rheumatologist after GP consultation) was 8.0 weeks. The mean total delay (time taken for a patient to be seen by a rheumatologist after symptom onset) was 13.7 weeks. Patients diagnosed with rheumatoid arthritis and spondylarthritis had the longest total delay. Longer patient delay was associated with socio-demographic factors like female sex, age and clinical characteristics like symmetric symptom distribution, small joint involvement and upper limb joint involvement [3].

The health seeking behaviors of patients in regard to self-medication, other medical consultations prior to presenting to a rheumatologist, poor knowledge of the disease, seeking alternative treatment, advice from non-medical individuals such as family, friends or online sources and experiences from previous medical encounters, are also known to affect time to presentation [5]. Thus, determining time to presentation of rheumatic diseases and factors that lead to a delay in diagnosis are of paramount importance as this knowledge can be used to create awareness among the medical community as well as the public for early diagnosis, resulting in better outcomes. We could not find any data regarding factors affecting time to presentation to rheumatology clinics in Sri Lanka. Therefore, the present study aims to address this gap in the available evidence from Sri Lanka.

Methods

The study was a descriptive cross-sectional study and was conducted at the three rheumatology clinics at National Hospital of Sri Lanka (NHSL). This setting was chosen as it is the largest tertiary care hospital in Sri Lanka, and a study population of all ages, from different socioeconomic backgrounds attend. Ethical clearance for the study was obtained from the Ethics Review Committees (ERC) of the Faculty of Medicine, University of Colombo and NHSL.

Patients between 18-75 years of age whose first presentation to the rheumatology clinics had been within 6 weeks period to the date of data collection were recruited for the study. Patients who were already managed at other rheumatology clinics prior to attending NHSL and patients without a confirmed rheumatological diagnosis were excluded from the study. One hundred and twenty patients were recruited for the study using a systematic sampling method, as described below. During data collection, each day a clinic was chosen randomly by drawing lots. Since the study population is 120, data of 20 patients were collected on each of the six data collecting days. The sampling interval (n) was calculated by dividing the total number of patients attending the clinic that day by the sample size (20 patients). First patient was chosen randomly using a number generated by a random number table and data was collected from every nth patient.

Data collection was done using interviewer administered questionnaires. They were interviewed in Sinhala, Tamil and English according to the native language preferred by the participant. Informed written consent of the patients was obtained before administering the questionnaire. The questionnaire consisted of 3 sections. Section 1 of the questionnaire evaluated socio-demographic characteristics (age, gender, education level, monthly income and occupation). Section 2 was based on inputs from the National Rheumatology Clinic Data Registry of Sri Lanka, Proposed WHO-ILAR COPCORD questionnaire-2006 and the Pain visual analogue scale, while section 3 was based on the DELAY patient questionnaire [6]. Section 2 assessed the distribution of clinical characteristics and time to presentation to rheumatology clinics from the onset of symptoms among patients with rheumatic disorders. Under this section clinical characteristics in regard to disease pattern, pattern of clinical symptoms and severity of joint and musculoskeletal pain were assessed.

Under section 3 information on how patients react to their symptoms, how they initially managed their symptoms, their knowledge of the symptoms, other people they may have spoken to about their symptoms before seeing a GP, reasons for waiting before they went to see the GP and past experiences from medical encounters were addressed.

SPSS statistical software package was used to enter and analyse the data. The frequency distribution of healthcare delay, patient delay and total delay are depicted using graphs. The median of total delay which was 12 months was taken as the cut-off to categorize time to presentation into two. The association of time to presentation with sociodemographic factors, clinical symptoms, pattern of joint involvement, severity of pain, diagnosis, pattern of first consultation and health seeking behaviors were analyzed using chi-square.

Results

A total of 120 patients participated in this study. Table 1 shows the distribution of socio-demographic characteristics of participants.

Table 1. Socio-demographic characteristics of the study population

Selected sociodemographic Characteristics	Number (n=120)	Percentage (%)
Age (years)*		
21-30	4	3.3
31-40	4	3.3
41-50	14	11.7
51-60	57	47.5
61-70	33	27.5
71-80	8	6.7
Sex		
Male	34	28.3
Female	86	71.7
Level of education		
Not attended	3	2.5
Grade 1-5	14	11.7
Grade 6-11	69	57.5
Grade 12-13	32	26.7
Degree/diploma holder	2	1.7
Monthly income		
< Rs. 20,000	21	17.5
Rs. 20,000-50,000	37	30.8
Rs. 50,000-100,000	7	5.8
>Rs. 100,000	0	0
No income (depend from others)	55	45.8
Occupation		
Employed full-time	39	32.5
Employed part-time	5	4.2
Unemployed	56	46.7
Disabled or too ill to work	2	1.7
Retired	18	15
Type of occupation**		
Professionals	14	11.7
Technicians and associate professionals	1	0.8
Clerical support workers	5	4.2
Service and sales workers	1	0.8
Craft and related trades workers	9	7.5
Plant and machine operators	6	5
Elementary occupations	6	5

*Age was categorized after taking the minimum and maximum values and categorizing into 6 groups each with an interval of 10.

**Categorization of occupations was done in accordance with the International Standard Classification of Occupations (ISCO-08).

The percentage of each occupation was taken from the total study population

Majority of the patients presented with involvements in both knee joints (55%) and 60.8% of the patients had severe pain at the time of presentation. Most of the patients (43.3%) were diagnosed with osteoarthritis, while 40% were diagnosed with rheumatoid arthritis.

When considering the health seeking behavior among patients, majority (70.8%) of the patients had their first consultation with a general practitioner, had good knowledge of their symptoms (53.3%), had bad reactions to their symptoms (54.2%), poor sources of information about the symptoms (53.3%) and good attitudes and confidence towards the doctor (70%).

Figure 1 and 2 shows the frequency distribution of patient and healthcare delay respectively. The median patient delay in presentation was 6 months and the healthcare delay was 6 months. Mean of the total delay was 25.9 months (median and mode both 12 months).

Majority of the patients aged ≥57 (75.7%) presented late to the rheumatology clinics. This association was found to be statistically significant. There was a statistically significant tendency of patients with a monthly income of more than Rs. 20,000 to present late to the clinic (p=0.007) (Table 2).
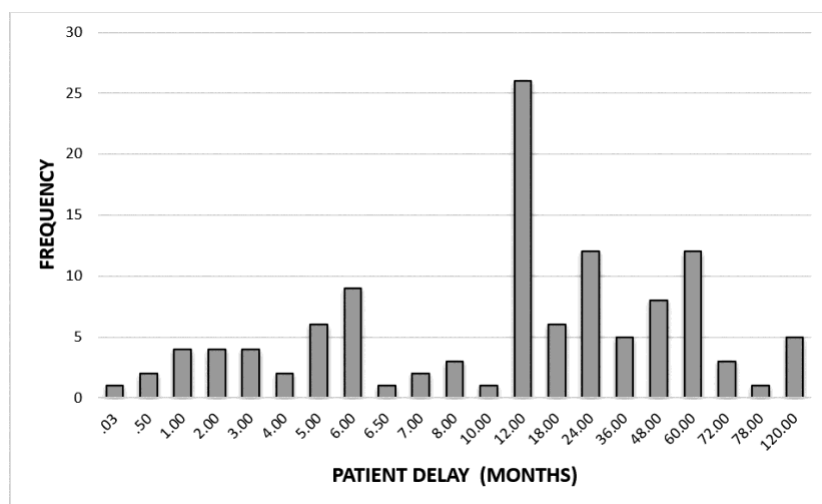

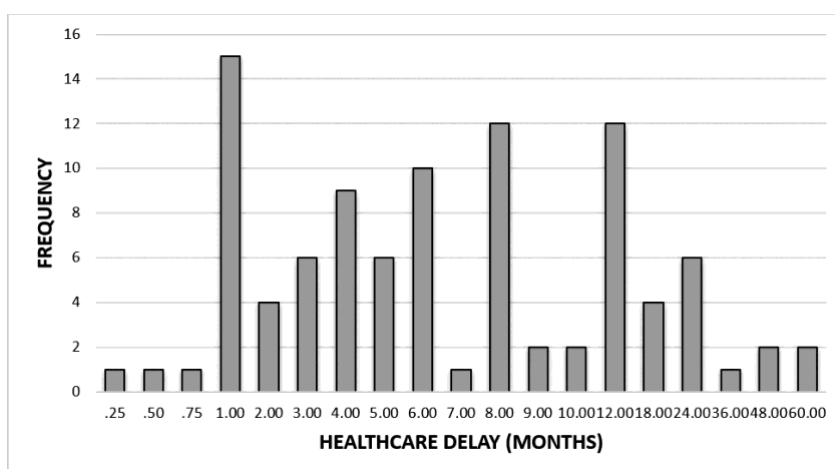**Figure 1. Frequency distribution of patient delay to rheumatology clinics at NHSL.**

Figure 2. Frequency distribution of healthcare delay of patients attending the rheumatology clinics at NHSL.

Table 2. Association between socio-demographic characteristics and the time presentation

Factor	Time to presentation[**]				Significance
	<12 months N(n=40)%		≥12 months N(n=80)%		
Amalgamated age[*]					χ^2=6.189
<57	23	46	27	54	df=1
≥ 57	17	24.3	53	75.7	p= 0.013
Sex					χ^2=1.005
Male	9	26.5	25	73.5	df=1
Female	31	36	55	64	p=0.316
Amalgamated education level					χ^2=0.513
Up to O/L	27	31.4	59	68.6	df=1
Above O/L	13	38.2	21	61.8	p=0.474
Amalgamated monthly income level					χ^2=7.177
≤ Rs. 20,000	32	42.1	44	57.9	df=1
> Rs. 20,000	8	18.2	36	81.8	p=0.007
Amalgamated occupation categories					χ^2=0.072
Employed	14	31.8	30	68.2	df=1
Unemployed	26	34.2	50	65.8	p=0.789

There was no statistically significant association between time to presentation and pattern of joint involvement. Majority of the patients with severe pain (67.1%) presented late, however, this association was not found to be significant (p=0.976). Around 79.2% diagnosed with rheumatoid arthritis (RA) presented late at/after 12 months whereas all patients diagnosed with SLE presented before 12 months. These associations were statistically significant (RA p=0.018 and SLE p=0.044). Patients with mechanical backache (61.5%) and all the patients with neck pain presented early and were also statistically significant (backache p=0.022 and neck pain p=0.044). All other diagnoses were found not to have a statistically significant association with time to presentation. Patients who initially went to a general practitioner (65.7%) presented with a delay of more than 12 months and this was not significant. Majority of the patients who had poor health seeking behaviors presented with a delay but there was no significant association between the assessed health seeking behavior categories and time to presentation.

Discussion

Our study describes factors associated with time to presentation of patients to rheumatology clinics at the NHSL. In a study conducted at the Leiden Early Arthritis Clinic, the mean patient delay was 2.4 weeks, the mean GP delay was 8.0 weeks and the total delay was 13.7 weeks [2]. In contrast to the above study, our study shows a longer delay at presentation which would directly affect favorable therapeutic outcomes. As our study has patients with varying rheumatological diseases including those with mechanical backache, unlike the above study which only includes patients with arthritis. Therefore, the longer delay in our study could be attributed to patients with varying diagnoses.

Factors associated with time to presentation were analyzed taking 12 months which is the median total delay as the cut off value. Increasing age and high monthly income showed a significant association with delay in presentation. Canadian Early Arthritis Cohort Study revealed that age and educational level were significant predictors whereas sex and income had no effect [6]. Unlike the present study, the education level showed a significant association with time to presentation and income did not. This may be due to the fact that the majority of the study population in the above study shows good education levels and good income. Moreover, the fact that the above study focuses on rheumatoid arthritis patients only may affect the differences in results.

Rheumatoid arthritis, mechanical backache, neck pain and systemic lupus erythematosus showed significant

association between time to presentation. A study done in Netherlands, showed that among all the diagnoses, rheumatoid arthritis and spondylarthritis had the longest total delay (18 weeks) and longer total delay was also associated with small joint involvement vs large joint involvement [2]. This association is incompatible with our study as most of our study population consisted of osteoarthritis patients rather than those with rheumatoid arthritis.

Limitations of our study were as follows. Sample size of 120 subjects was chosen due to practical limitations of time and resources but a larger sample size would have improved the validity of the findings. Lack of diversity of the study population in terms of gender was a major limitation as only few male patients could be recruited to the study. Standardized questionnaires were used to assess the health seeking behaviour. However, none of the questionnaires were validated for the Sri Lankan population. Hence several modifications were made to the questionnaires under the expertise of a Consultant Rheumatologist to better suit the local population. As the study was conducted only at the NHSL, findings may not be representative of patients presenting to other hospitals in Sri Lanka.

Conclusions

In our study the median total delay of the overall study population was 12 months. There is a significant delay in presentation of patients with rheumatoid arthritis and patients over 56 years of age and patients with high monthly income. However, gender, education level, pattern of joint involvement and health seeking behaviors were not associated with delay. Steps should be taken to create awareness among the general public and general practitioners of the presence of a delay in presentation of patients with rheumatic disorders. Interventions should be undertaken to educate the public and general practitioners on the factors associated with time to presentation of patients with rheumatic disorders.

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