FREQUENCY OF CARPAL TUNNEL SYNDROME AND METABOLIC SYNDROME IN PATIENTS SUFFERING FROM RHEUMATOID ARTHRITIS:- AN EXPERIENCE FROM TERTIARY CARE HOSPITAL

Muhammad Bilal, Saad Ali, Yaseen Khan, Mohammad Amjad

ABSTRACT

Objective: To identify the frequency of carpal tunnel syndrome (CTS) and metabolic syndrome (MS) in patients suffering from Rheumatoid Arthritis (RA).

Material and Methodology: This cross sectional study was conducted in Neurology and Medical C wards in Lady Reading Hospital (LRH), Peshawar for 8 months from 15/02of/2014 to 15/10/2014.The sampling technique was non probability convenient sampling. Patients with known RA were included in study and looked for CTS and MS. Case with RA were diagnosed with American College of Rheumatology (ACR) 2010 criteria for RA. CTS was identified by nerve conduction study (NCS) according to American Association of Electro diagnostic Medicine (AAEM).MS was diagnosed according to National Cholesterol Education Program Adult Treatment Panel (NICEATP).

Results: out of 193 patients diagnosed with RA 33 patients(17%) patients had CTS and 85 patients (44%) had MS. While out of 33 patients with CTS and RA 26 (79%) patients had MS as well.

Conclusion: CTS and MS are significantly associated with RA. MS was frequently associated with cases having CTS and RA.

Key words: Rheumatoid arthritis, Carpal tunnel syndrome, Metabolic syndrome, frequency, nerve conduction study.

INTRODUCTION

RA is a systemic, autoimmune disorder that primarily manifests as chronic synovial inflammation of multiple joints[1,2]. RA affects 0.5% to 1% of population worldwide[3]. In Pakistan in a study at Karachi it was found in 13% of patients visiting rheumatology clinics[4]. It is associated with an increased risk for cardiovascular (CV) disease such as myocardial infarction, stroke and cardiac heart failure[5].

Several reports have discussed the association between chronic inflammatory disease states and disorders in intermediary metabolism, particularly peripheral insulin resistance (IR). IR is part of MS.MS is characterized by cardiovascular risk factors like glucose intolerance, dyslipidemia, hypertension and obesity[6]. Obesity alone carries an important impact factor in developing RA and has been labeled as prognostic factor for severity in many studies[7]. Obesity is also risk factor for CTS and hence many patients with MS also have CTS. Other predisposing factors for CTS include diabetes, pregnancy, hypothyroidism, hormone replacement therapy, steroids and rheumatoid arthris[8]. So CTS is associated with both MS and RA. Infect MS has been found three times more prevalent in CTS[8].

There has been studies considering the frequency of MS in RA and CTS in RA but in our study we are looking at the frequency of both MS and CTS in RA to get better understanding to the disease process that would help in the management of the patients.

METHODOLOGY

This cross sectional study was conducted at Neurology and Medical C ward at LRH, Peshawar and the duration of study was 8 months from 15/02/2014 to 15/10/2014. During the study, diagnosed cases of Rheumatoid Arthritis according to ACR 2010 criteria for RA from Out Patient Departments and Emergency Room fulfilling inclusion criteria, from age group of 20 years and above and irrespective of their gender were included in the study . Patients below 20 years, those with pregnancy, hypothyroidism, and those who were taking long term steroids and hormone replacement were excluded as they were confounding elements. An informed written consent was taken from each patient. The cases were confirmed on the basis of physical examination, autoimmune profile, radiologic evidence, and by NCS. Cases with RA were diagnosed according to ACR 2010 criteria. For MS NCEATP criteria was used, and for CTS AAEM criteria on NCS was used. All NCS were done in Neurology department, LRH. The electrophysiological parameters (median nerve distal motor latency, median nerve motor amplitude, median nerve

Department of Medicine LRH Peshawar

Address for correspondence:
Dr. Muhammad Bilal
Registrar, Medical B Ward, Lady Reading Hospital, Peshawar - Pakistan.
E-mail: dr_bilal79@hotmail.com

motor conduction velocity, median nerve sensory onset latency, median nerve sensory amplitude, and median nerve conduction velocity) were calculated.

All the findings were recorded in preformed Performa. Data was analyzed using SPSS version 17, and presented in tables. Qualitative variables like patients with RA, patients with RA and CTS, patients RA and MS, and patients with RA, MS and CTS were presented as frequency (%) and numerical variables like age was presented as mean ± SD.

RESULTS

A total of 193 patients of Rheumatoid Arthritis were collected during study period and frequency was studied in different age group. Mean age of the patients was 35 ± 9.7 years. Patients aged 30-40 years had the highest frequency i.e 88 cases (45%). The frequency of CTS in RA patients was 33 patients (17%). A total of 85 patients (44%) of cases with RA had MS. While 26 patients (79%) of the patients with RA and CTS also had MS. The highest frequency of CTS and MS is also found in age group 30-40 years i.e 12 patients (6%) and 26 patients (13%) respectively. All these results are shown in the table below.

DISCUSSION

Table No 1: Age distribution (n=196)

S.no	Age group	Number of patients with RA	Number of patients with RA and CTS. N=193	Number of patients with RA and MS. N=193	Number of patients with RA, and with both CTS, and MS. N=33
1	20-30 years old	65 (34%)	4 (2%)	15 (8%)	4 (15%)
2	30-40 years old	88 (45%)	12 (6%)	26 (13%)	6 (23%)
3	40-50 years old	11 (6%)	8 (4%)	22 (11%)	10 (38%)
4	50 years and above	26 (13%)	7 (4%)	22 (11%)	6 (23%)
	Total	193	33 (17%)	85 (44%)	26 (79%)

RA is a chronic autoimmune disease involving not only joints but almost all the systems of the body that is a cause of work disability. its prevalence is largely unknown in developing countries. In Pakistan significantly high prevalence was seen in north[9]. RA is multisystem disorder that is associated with other co-morbidities[10]. The co-morbidities associated with RA include other autoimmune diseases like hypertension, ischemic heart disease, diabetes, and asthma etc. CTS and MS are also frequently associated with RA and affect the life quality of the patients.

The frequency of CTS in RA patients was 17% in our study. In another study looking for the incidence of CTS in RA patients it was found to be 6.8% over 12 years. They also found that CTS occurrence did not correlate with the duration of RA[11]. In our study among these 17% (33 patients) 26 patients (79%)also had MS as well. In another study 73.5% patients with CTS had MS[12]. Patients with MS tend to have increase severity of CTS[8].

MS is found to be 27% and 33% of patients with RA in a study[6], compared to 44 % of RA patients in our study. The reason can be explain by striking increase in number of patients with MS over past 2 decades. Obesity is found to be 46-68%, hypertriglyceridemia in 27-54%, and low HDL in 68-81% in Pakistan[10].

The management of RA includes not only use of disease modifying drugs or biological agents but also treating the systemic manifestations of the disease and looking for the co-morbidities.

CONCLUSION

CTS and MS are frequently associated with RA. It is important to look for them as they can affect the management of the patients in terms of improving the quality of life.

REFERENCES

1. Wasko MC, Kay J, Hsia EC, Rahman MU. Diabetes Mellitus and insulin resistance in patients with rheumatoid arthritis: risk reduction in chronic inflammatory disease. Arthritis Care Res 2011;63(4):512-21.
2. Peters MJL, Halm VP, Voskuyl AE. Does rheumatoid arthritis equal diabetes mellitus as an independent risk factor for cardiovascular disease? A prospective study. Arthritis Rheum 2009;61(11);1571-79.
3. Gabriel SE. The epidemiology of rheumatoid arthritis .Rheum Dis Clin North Am 2001;27(2):269-81.
4. Alam SM, Kidwai AA, Jafri SR, Qureshi BM, Sami A, Qureshi HH, etal. jpma 2011;61(2):123-26.

5. Bilecik NA, Tuna S, Samanci N, Baci N, Akbas H. Prevalence of metabolic syndrome in women with rheumatoid arthritis and effective factors. Int J Clin Exp Med 2014;15(8):2258-65.

6. Finckh A, Turesson C. The impact of obesity on development and prognosis of rheumatoid arthritis. Ann Rheum Dis 2014;73:1911-13.

7. Baci K, Utku U. Carpal tunnel syndrome and metabolic syndrome. Acta Neurol Scand.2007;116(2):113-7.

8. Butcher L. Rheumatoid arthritis. Prevalence, economics and implications for payers and purchasers. Biotechnol Heathc 2008;5(2);16-17.

9. Farooqi A, Gibson T. Prevalence of the major rheumatic disorders in the adult population of north Pakistan Br J Rhematol. 1998;37(5):491-5.

10. Basit A, Shera AS. Prevalence of metabolic syndrome in Pakistan. Metab Synd Relat Disord 2008;6(3):171-5.

11. Lee KH, Lee CH, Lee BG, Park JS, Choi WS. The incidence of carpal tunnel syndrome in patients with rheumatoid arthritis. Int J Rheum Dis 2014;8. doi:10,111/175-185.

12. Onder B, Yalcin E, Selcuk B, Kurtaran A, Akyuz M. Carpal tunnel syndrome co-occurance. Rheumatol Int 2013;33(3):583-6.