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Inflammatory Rheumatologic disorders in patients with Myelodysplastic Syndromes: A cross-sectional study

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ABSTRACT

Background: The aim of this study was to determine the prevalence and characteristics of rheumatologic manifestations associated with MDS.

Methods: Eighty patients with MDS were evaluated by history and physical examination for inflammatory rheumatologic disorders from Jan 2013 to May 2014. Patients who had any signs or symptoms of rheumatologic disorders underwent evaluation by laboratory tests. Patients with and without inflammatory rheumatic disorders were compared for their characteristics.

Results: Of 80 participants with MDS, 9 (11.3%) patients were diagnosed as having rheumatic disorders. MDS patients with or without rheumatologic disorder were similar in demographic and hematologic parameters, except age which was lower in patients with rheumatologic disorders. (p=0.016). In younger patients, refractory cytopenia and refractory cytopenia with multilinage dysplasia were more prevalent.

Conclusion: The findings of this study indicate that rheumatologic manifestations may be present in MDS patients. Younger patients are more prone to the occurrence of MDS and rheumatic disorders.

Keywords: Myelodysplastic Syndrome, Arthritis, Vasculitis, Rheumatoid Arthritis

INTRODUCTION

Myelodysplastic syndromes (MDS) describe a heterogeneous group of malignant hematopoietic stem cell disorders which characterized by dysplastic and ineffective blood cell production and a variable risk of transformation to acute leukemia. Because of a variable reduction in production of normal blood cells, a variety of systemic consequences including anemia, bleeding, and an increased risk of infection may occur[1.]

A wide spectrum of autoimmune manifestations is reported in myelodysplastic syndromes [2]. There are some case reports and series indicating the association of MDS with inflammatory arthritis [3-7] or vasculitis syndromes [8-10]. In some cases, drugs such as hydroxychloroquine and azathioprine were considered as corresponding factors [3, 11]. Patients with inflammatory arthritis and cytopenia are often diagnosed with SLE, RA (felty's syndrome) or sarcoidosis, but clinician should remember that it may be a combination of inflammatory arthritis and MDS. Thus, careful examination by a hematologist is recommended.

The study was designed to determine the association between rheumatologic disorders and MDS.

MATERIALS AND METHODS

From Jan 2013 to May 2014, eighty consecutive patients with MDS were referred by a hematologist to the rheumatology clinic in Sari, northern Iran. Study approval was obtained from the Ethics Committee of Mazandaran University of Medical Sciences.

The diagnosis of MDS and its subtypes was confirmed by study of peripheral blood smear (PBS) and bone marrow aspiration. All patients with unexplained cytopenia including monocytopenia, bicytopenia or pancytopenia in initial evaluation underwent bone marrow aspiration; biopsy and iron staining for ringed sideroblasts .Patients with unexplained morphologic features of dysplasia in blood and marrow were included in the study. The subtypes of MDS are refractory cytopenia with unilinage dysplasia [10] refractory anemia with ring sideroblasts(RARS), refractory cytopenia with multilinage dysplasia (RCMD), refractory anemia with excess blast (RAEB), MDS with isolated del(5q) and MDS unclassified. Patients' information including age, gender, and history of systemic disorders, disease duration and subtype of MDS were recorded. A rheumatologist evaluated the patients by history (for joint symptoms, skin rashes, and family and drug history) and physical examination for inflammatory rheumatic diseases including rheumatoid arthritis (RA), systemic lupus erythematosus (SLE) and vasculitis syndromes. Patients who had any signs or symptoms for inflammatory arthritis were evaluated by laboratory tests. Diagnosis of any rheumatologic disorder was made according to classification criteria. Patients with and without inflammatory rheumatic disorders were compared for their hematologic and basic characteristics by t-test and chi-square test with SPSS v (20) package.

RESULTS

This cross sectional study surveyed the characteristics of inflammatory arthritis in patients with MDS in hematology and rheumatology clinics in Sari, Iran. Thirty-six (45%) of 80 patients enrolled in the study were females. The mean age was 57.9±18-81 years. Systemic or metabolic disorders included diabetes mellitus, hyperlipidemia, hypothyroidism, renal failure in 10(12.5%), 16(20%), 16(20%), 10(12.5%) of participants, respectively. The subtypes of MDS included RC in 28 (35%), RARS in 1(1.3%), RCMD in 47(58.8%), RAEB1 in 3 (3.8%) and RAEB2 in 1(1.3%). Inflammatory rheumatologic disorders were detected in 9(11.3%) of cases. The subtypes of MDS in these patients included RC in 4(44.4%), RCMD in 4(44.4%) and RAEB1 in 1(11.1%). No significant difference was found in hematologic parameters including white blood cell count (WBC), hemoglobin (Hg), red blood cell count (RBC) and platelet count between the two groups (p>0.05).Various types of inflammatory rheumatologic disorders may be associated with MDS (Table 1).

RCMD: Refractory cytopenia with multilinage dysplasia, RC: Refractory cytopenia, RAEB 1: Refractory anemia with excess blast 1.

Demographic data and underling disease in MDS patients with and without rheumatologic disorders were compared in Table 2.

Table 1: Characteristics of MDS patients with inflammatory rheumatologic disorder

Patient NO	Age(years)	Sex	Duration of MDS (month)	Rheumatologic disorder	MDS subtype
1	75	M	48	Systemic sclerosis	RCMD
2	34	F	12	Systemic lupus erythematous	RCMD
3	18	F	60	CNS Vasculitis	RC
4	43	F	36	Spondylo arthopathy and IBD	RCMD
5	72	M	36	Polymyositis	RC
6	57	F	6	Rheumatoid arthritis	RAEB 1
7	61	F	12	Sarcoidosis	RCMD
8	30	F	36	Rheumatoid arthritis	RC
9	37	M	6	Rheumatoid arthritis	RC

DISCUSSION

The co-existence of MDS and rheumatologic disorders was shown in 11.3% of patients.

Different rheumatic manifestations have been reported in association with MDS. Several reports showed that about 10% of MDS patients have clinical autoimmune disorders such as skin vasculitis and rheumatic disease or autoimmune hemolytic anemia[12].

Table 2: Basic characteristics of patients with and without rheumatologic disorder

	MDS with Rheumatic disorder	MDS without Rheumatic disorder	P value
Age(years)	47.4±19.74	59.7±13.06	0.016
MDS duration(month)	24.8±15.65	18.9±13.0	0.266
Sex, Female (count, %)	6 (66.7%)	30 (42%)	0.286
Diabetes mellitus(Count)	0	10 (14%)	0.342
Hyperlipidemia(Count)	0	16 (22%)	0.323
Hypothyroidism(Count)	3 (33%)	13 (18.3%)	0.395
Renal failure(Count)	2 (22.2%)	8 (11.2%)	0.338
Most prevalent type of MDS	RC, RCMD	RCMD	0.675

George et al., and mendez et al., reported the association of MDS with inflammatory arthritis in 8 of 28(28.5%) patients and 3 of 55 patients(5.4%), respectively [4, 5]. But in a recent study conducted by Mekinian, 22 patients with MDS were evaluated for inflammatory arthritis and polyarthritis was diagnosed in 17(77%) cases [6]. Inflammatory arthritis was recorded between 5.4 and 77% in patients with MDS[4-6]. It may be because of methods for classification and diagnosis or duration of disease.

There are some kinds of immunological abnormalities in patients with MDS, including defective B- and T-cell function, hyper or hypogammaglobulinemia and monoclonal gammopathy. Positive antinuclear antibody and positive direct Coombs test or inverted CD4/8 ratios were found in 18-65% of patients with MDS(12, 13). Considering the unavailability of cytogenetic study in our center, we suggest future surveys on the association of rheumatologic disorders in MDS patients with different kinds of cytogenetic anomalies.

CONCLUSION

The findings of this study indicate that rheumatologic manifestations may be present in MDS patients. Younger patients are more prone to the occurrence of MDS and rheumatic disorders.

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CONFLICT OF INTEREST

None declared.

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