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POSTER PRESENTATION

Epidemiology of COVID-19 in MS patients: A Population-Based Registry Study in Iran

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INTRODUCTION

The novel coronavirus has spread from Wuhan, China to the entire world, changing the lives of millions. Its easy transmissibility and wide range of complications including neurologic ones necessitate vigorous attempts to study its nature and characteristics.

Iran is one of the countries with high prevalence of MS and COVID-19 infection. 6,069,559 patients with COVID- 19 have been identified including 128,734 deaths in Iran until November 20, 2021 (1).

AIM

This study is the first multicenter report of COVID-19 in Iranian patients with multiple sclerosis, trying to address the concerns of this population about the disease characteristics, risk factors of severity, and differences with the general population or other corners of the world.

Table 1. Basic information of the patients

Gender (%)	
Female	**310 (78%)**
Male	**87 (22%)**
Mean age (SD)	36.5 (9.5)
MS type (%)	
RR	294 (74%)
SP	32 (8.1%)
CIS	22 (5.5%)
PP	15 (3.8%)
RP	4 (1%)
Mean EDSS (SD)	1.9 (1.8)
Steroid in the last three months (%)	
Negative	364 (92%)
Positive	33 (8%)
Additional drugs (%)	
Vitamin D	339 (85%)
Vitamin C	111 (28%)
Zinc	71 (18%)
NSAID	8 (2%)
ACE inhibitors	2 (0.5%)
Chronic diseases (%)	
Hypertension	19 (5%)
Diabetes mellitus	14 (4%)
Asthma	5 (1%)
(COPD)	1 (0.3%)
Respiratory allergy	8 (2%)
Previous pneumonia	4 (1%)
Cancer	1 (0.3%)
Pregnancy	1 (0.3%)
Others	40 (10%)

Chronic obstructive pulmonary disease (COPD)

Table 2. COVID-19 related data

COVID-19 symptoms	N (%)
Body pain	**238 (60%)**
Malaise	**232 (58%)**
Fever	**217 (55%)**
Loss of smell	**200 (50%)**
Loss of taste	**187 (47%)**
Dry cough	**161 (41%)**
Headache	**155 (39%)**
Dyspnea	**123 (31%)**
Nasal discharge	**55 (14%)**
Productive cough	**49 (12%)**
Altered mental status	**12 (3%)**
COVID PCR	
Not done	126 (32%)
Positive	256 (64%)
Negative	15 (4%)
Lung CT results	
Not done	291 (73%)
Normal	16 (4%)
Ground glass	87 (22%)
Consolidation	14 (3%)
ARDS	1 (0.3%)

ARDS= Acute respiratory distress syndrome

METHODS

A web-based COVID-19 in MS registry system of Iran was designed. The validity and reliability of the MS questionnaire had been previously confirmed (2).

The study was held between 2020 to 2021.

COVID-19 infection was confirmed by an internist or infectious diseases specialist with reviewing clinical aspects, polymerase chain reaction (PCR), and/or lung CT scan. MS patients with COVID-19 were entered into the registry. Identification, demographic characteristics (age, gender, place of residence), and information on MS and COVID-19 were collected.

Patients were grouped into those older or younger than 50 years old. MS data included: type (clinically isolated syndrome (CIS), relapsing-remitting (RR), secondary progressive (SP), primary progressive (PP), relapsing progressive (RP), expanded disability scoring scale (EDSS), disease-modifying drug (DMD) and if the patient has received steroid in the last three months. MS types were entered as progressive versus non-progressive forms (3-4).

Information on COVID-19 characteristics were: symptoms, PCR and CT results, drugs, and admission information.

Descriptive analysis, univariate and multivariate regression models were adopted, using IBM® SPSS® version 26.

Ethical issues:

To ensure the privacy of the patients, limited access to the registry was defined for each registrar. Study details, goals and publication items were explained to the patients.

Table 3. Characteristics of the COVID-19

COVID drugs	N (%)
Naproxen	64 (16.1%)
Hydroxychloroquine	58 (14.6%)
Kaletra	7 (1.8%)
Tamiflu	7 (1.8%)
Salbutamol	3 (0.8%)
Tocilizumab	1 (0.3%)
Others	106 (26.7%)
Admission status	
Not admitted	325 (82%)
Discharged	68 (17%)
Death	4 (1%)

RESULTS

During the study period, 397 eligible patients were identified. As shown, 310 (78%) patients were female. The mean age (SD) was 36.5 ± 9.5 years old.

294 (74%) had RR type of MS. EDSS averaged (SD) 1.9 ± 1.8. Only 33 (8%) patients had received steroids in the previous three months. Dexamethasone, prescribed in 11 (40%) patients, was the most used steroid. 339 (85%) used .

The most common underlying chronic disease was hypertension (n: 19, 5%) (Table 1).

RESULTS

Loss of taste was associated with age older than 50 (OR:0.41, 95% CI:0.19 - 0.87), receiving steroids in the last three months (OR:2.75, 95% CI:1.27- 5.96) and diabetes mellitus (OR: 0.25, 95% CI:0.07- 0.94), the steroid use (B= 0.96, p value: 0.02) remained statistically significant.

Loss of smell showed associations with age older than 50 (OR:0.0.30, 95% CI:0.14 - 0.65), receiving steroids in the last three months (OR:3.33, 95% CI:1.46- 7.59), and diabetes (OR: 0.18, 95% CI:0.04- 0.80).

Productive cough (OR:2.58, 95% CI:1.20- 5.53), malaise (OR:2.31, 95% CI:1.16- 4.62), and altered mental status (OR:5.34, 95% CI:1.62- 17.58) were the symptoms more seen in progressive forms.

Dyspnea was more in patients who received steroid in the last three months (OR:2.24, 95% CI:1.09- 4.60).

Anti CD20s showed association with altered mental status (OR: 9.58, 95%CI:2.07- 44.377), malaise (OR: 2.22, 95%CI: 1.43-3.43), dyspnea (OR: 2.34, 95%CI:1.51-3.63), dry cough (OR: 2.10, 95% CI: 1.38-3.19). Progressive cases were admitted in the hospital more (OR:3.56, 95% CI:1.84- 6.87) (Table 2).

Hospital admission was also obviously more in patients receiving anti CD20 compared to other drugs or no drug (OR:5.99, 95% CI:3.43- 10.45).

The mean EDSS was 2.90 ± 2.03 in admitted patients and 1.79 ± 1.68 in others (p value: 0.001).

The mean (SD) of EDSS score was 1.88 (1.80) and 1.91 (1.92) before and after Covid-19 infection respectively (p value ≥0.05) (Table 3).

CONCLUSIONS

This study will provide valuable and novel epidemiological knowledge on MS patients with COVID-19. COVID-19 infection was more common among female and increased EDSS among subjects. The infection symptoms and mortality rate of COVID-19 in MS subjects are comparable to the general population.(3-5).

BIBLIOGRAPHY

1- Azami M et al. Epidemiology of multiple sclerosis in Iran: A systematic review and meta-analysis. PLoS One. 2019;14(4):e0214738.

2- Eskandarieh, et al.. Multiple sclerosis national registry system in Iran: Validity and reliability of a minimum data set. Mult Scler Relat Disord, (2019)33, 158-161,

3- Giovannoni G et al. The COVID-19 pandemic and the use of MS disease-modifying therapies. Mult Scler Relat Disord. 2020;39:102073.

4-Zhang Yet al. Perceptions of risk and adherence to care in MS patients during the COVID-19 pandemic: A cross-sectional study. Mult Scler Relat Disord. 2021;50:102856.

5- Sahraian MA et al. Evaluation of the rate of COVID-19 infection, hospitalization and death among Iranian patients with multiple sclerosis. Mult Scler Relat Disord. 2020;46:102472.

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