

POSTER PRESENTATION

The Effect of Seasonal Variation on Relapse Rate in Patients with Relapsing-remitting Multiple Sclerosis in Saudi Arabia

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INTRODUCTION

Multiple sclerosis (MS) is becoming a global subject of study in which some demographic variations are thought to be correlated to its activity. Relapsing-remitting multiple sclerosis (RRMS) is the most common demyelinating disorder characterized by periods of exacerbating attacks followed by partial or complete remission (1). Several factors might play a role in disease progression and relapse frequency, such as vitamin D, ultraviolet B radiation, estrogen levels, smoking, obesity, and unhealthy lifestyle (2-4). In this study, we identified the relationship between seasonal variation and the relapse rate as well as correlated the latter with gender, age, and vitamin D levels in patients with RRMS in Jeddah, Saudi Arabia.

AIM

- To Identify the relationship between seasonal variation and the relapse rate in patients with relapsing-remitting MS in Saudi Arabia.
- To determine the relationship of vitamin D and the frequency of relapses in patients with relapsing remitting multiple sclerosis.

METHODS

This retrospective study was carried out in the neurology department at King Abdulaziz Medical City (KAMC), Jeddah. The data was collected from 182 patients with RRMS in the period between 2016 to 2021. Age, gender, diagnosis age, illness duration, and body mass index (BMI) were included as covariables. Each relapse was categorized into one of the twelve months and four seasons of the year according to the time of occurrence. The outcome variable is the relapse rate per season. Pearson correlation was utilized to evaluate the correlation between relapse rate and vitamin D levels. Chi-square test was conducted to investigate the association between relapses and some categorical variables such as age and gender.

RESULTS

219 relapses in 106 (58.2%) patients were documented. The relapse per patient ratio showed a sinusoidal pattern which peaked in January with a rate of 0.49 and troughed in June with a rate of 0.18. There was no evidence of different relapse rates for males compared to females ($\chi^2(1) = 1.166a, p = .280$). There was a significant negative correlation between vitamin D levels and relapse rate ($r = -.312, p = .024$).

Variable	Total, N (%) 182 (100.0)
Gender, N (%)	
Female	123 (67.6)
Male	59 (32.4)
Age, N (%)	
≤ 40	111 (61.0)
>40	71 (39.0)
Patients with events, N (%)	106 (100.0)
Female	75 (70.8)
Male	31 (29.2)
Current Age, median (min-max)	38 (59)
Age of diagnosis, median (min-max)	29 (49)
Disease duration, median (min-max)	7 (23)
BMI, mean (SD)	22.17 (4.77)

Table 1: Patient Characteristics

CONCLUSIONS

The relapse rate peaked in the winter months and correlated with low vitamin D levels. Relapses are likely multifactorial, and large population-based studies are needed to understand the role of environmental variables in MS exacerbations in Saudi Arabia.

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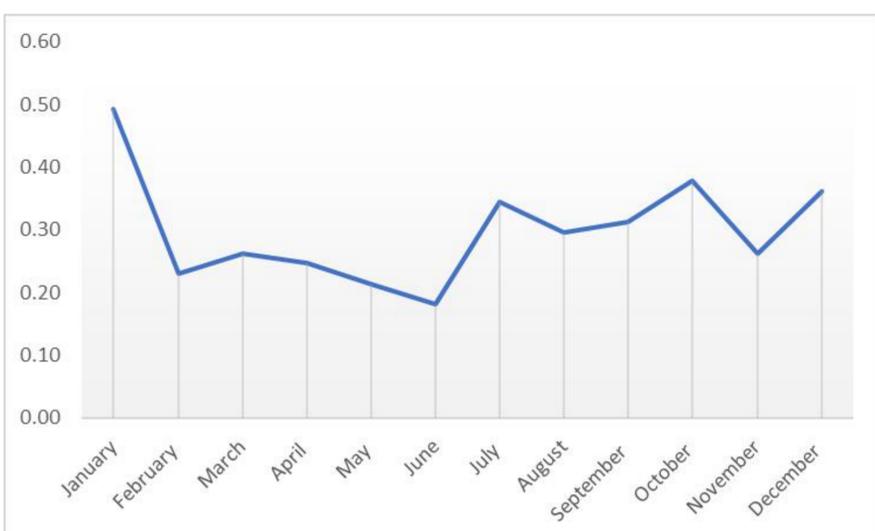


Figure 1: Line graph showing relapse per patient ratio in each month.

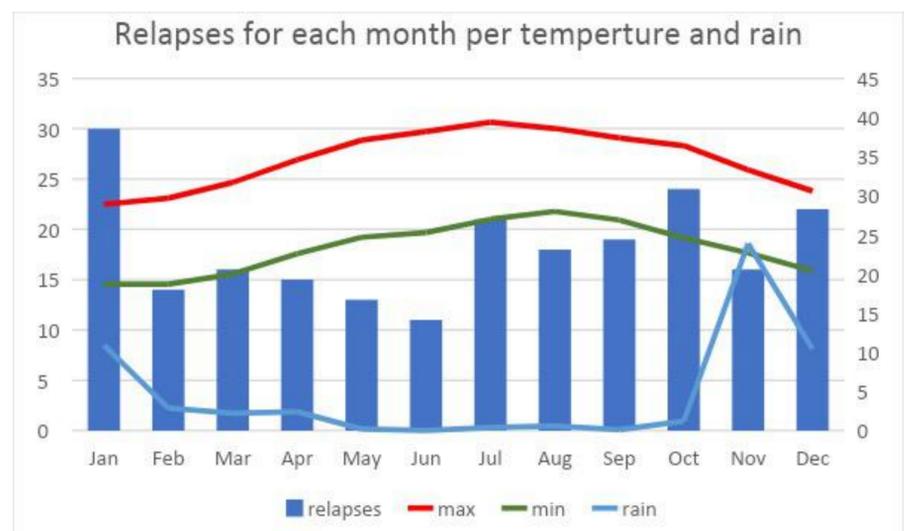


Figure 2: Bar chart showing frequency of relapses per month combined with three line graphs showing max. and min. temperature and rainfall.