

Rate of Multiple Sclerosis Relapse Occurrence in Pregnancy and Post-Partum Period

Raed Alroughani<sup>1</sup>, Maryam Al-Owayesh<sup>2</sup>, Samar Ahmed<sup>3</sup>, Raed Behebehani<sup>3</sup>, Jasem Al-Hashel<sup>2</sup>,

<sup>1</sup>Amiri Hospital, Kuwait, Kuwait; <sup>2</sup>Kuwait University, Kuwait, Kuwait; <sup>3</sup>Ibn Sina Hospital, Kuwait, Kuwait

**Background:** Although multiple sclerosis (MS) relapse rates are often reduced during pregnancy, disease reactivation may be of concern after withdrawals of disease-modifying therapies (DMTs) prior or at the time of pregnancy confirmation.

**Methods:** We conducted a retrospective cross-sectional study using the national Kuwait MS registry to identify pregnant women between 1 October 2011 and 30 September 2016. Data on demographic and clinical characteristics including relapses, prior use of DMTs, and pregnancy outcome were extracted. The primary outcome measure was the rate of relapse occurrence during pregnancy and the post-partum period. Furthermore, we investigated the relationship between the use of different DMTs and their washout periods and relapse occurrence.

**Results:** The medical records of 73 pregnancies (68 patients) were reviewed. Mean age and mean disease duration at the time of pregnancy confirmation were  $28.2 \pm 4.2$  and  $4.11 \pm 3.9$  years, respectively. Most patients (88.2%; n = 60) were on DMTs in the year prior to pregnancy. Beta-interferons were the most prescribed medications (42.6%) followed by natalizumab (25%) and fingolimod (19.1%). Thirteen relapses occurred in 16.2% of patients during pregnancy, 7 and 5 of which occurred in first and third trimesters, respectively. Natalizumab and fingolimod were associated with relapses in the first trimester. Additional 10 relapses were recorded during post-partum period within  $6.2 \pm 5.6$  weeks of delivery. Four miscarriages/spontaneous abortions were recorded.

**Conclusion:** The rate of relapse occurrence during pregnancy is higher than expected. Most relapses clustered in the first trimester suggesting that disease reactivation was associated with withdrawal of high-efficacy DMTs and closely related to the washout period prior to pregnancy. Future studies are needed to address the adequate washout period prior to conception and best time to reinstitute DMTs in highly active patients.