Rare Demyelinating Autoimmune Diseases and Pregnancy Outcomes

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ABSTRACT:

Background and objectives: Neuromyelitis optica (NMO) and myelin oligodendrocyte glycoprotein antibody-associated disease (MOGAD) are rare demyelinating autoimmune diseases that most often occur in women of child-bearing age. There is currently a paucity of data from which to base clinical guidelines in peripartum management of these conditions. The aim of the present study is to characterize pregnancy outcomes in women with NMO or MOGAD.

Methods: To understand interactions between these pathologies and pregnancy outcomes, retrospective chart review data were collected from four academic medical institutions in the southeast region of the United States using a REDCap-based tool.

Results: Data from 59 patients (40 NMO, 19 MOGAD) representing 101 NMO and 59 MOGAD pregnancies were included. Of these pregnancies, delivery data were recorded from 61 NMO and 46 MOGAD births. The present sample showed reduced rates of spontaneous abortion (SAB) at 6.9% in patients with NMO compared to patients with MS (17.3%, $p=0.045$). Intrauterine fetal demise (IUFD) was significantly more frequent in patients with NMO (1.98%) than in the general population (0.38%, $p= 0.042$). No differences in IUFD between patients with MOGAD and other groups were observed, though rates for patients with MOGAD (1.69%) neared those seen in patients with NMO. Rates of infection during pregnancy were significantly lower in patients with NMO (9.9%) and patients with MOGAD (8.5%) compared to patients with MS (51%, $p<0.0001$) and the general population (43%, $p<0.0001$). Only 10.2% of MOGAD pregnancies and 20.8% of NMO pregnancies were uncomplicated, which differs significantly from MS pregnancies (70%, $p<0.0001$) and pregnancies within the general population (75%, $p<0.0001$). No differences between groups were observed for preeclampsia, preterm delivery, or congenital malformations. This cohort demonstrated similar rates of both vaginal and cesarean delivery between MOGAD and MS, though these comparisons did not reach significance.

Discussion: Women with NMO and MOGAD had fewer spontaneous abortions and infections than both comparison groups, but more frequent complications in general. Unlike studies evaluating MS in pregnancy, this cohort did not demonstrate higher rates of preeclampsia or preterm birth. 43% of women in general and 51% of women with MS will experience an infection during pregnancy, but this rate was below 10% for both NMO and MOGAD cohorts in this study, possibly due to underreporting. Prior studies have found that women with MS have cesarean deliveries more frequently than their control counterparts, and while proportions in MOGAD (39.1%) were nearly identical to those seen in MS (39.5%), these were not significant findings within the current sample. These data show that MOGAD and NMO both have some similarities with MS in terms of pregnancy outcomes but may suggest some differences that require close monitoring and tailored treatment through pregnancy.