Obstetric-Gynecological Complications in Neuromuscular Disorders

Lakshmi P. Digala MBBS[1], Zahra Haider BS[1], and Raghav Govindarajan MD[1]
[1] Department of Neurology, University of Missouri, Columbia – 62502

ABSTRACT

Background and Objective: The data on the obstetric and gynecological complications in patients diagnosed with neuromuscular diseases is very limited and is primarily obtained from various case reports, series, and small studies. The objective of our study was to analyze prevalence of these complications in a large cohort of patients with various neuromuscular diseases.

Methods: This study is a retrospective chart review of patients diagnosed with various neuromuscular diseases at the University of Missouri, Columbia, from 2012 to 2017. We included patients who have at least one year follow up with us. We collected data on patient demographics, neuromuscular disease diagnosed, obstetric complications, and gynecologic complications. Data are reported as means ± SEM, and the results reported using prevalence rates.

Results: Ninety-five female patients were identified. Among them, 97% were Caucasian, and 3% were African-American with a mean age of 47.96 years. Neuromuscular diseases identified among them are Myasthenia Gravis (44%), Muscular Dystrophy (23%), Amyotrophic Lateral Sclerosis-ALS (16%), Charcot-Marie-Tooth disease-CMT (10%), and Spinal Muscular atrophy- SMA (7%). The majority of the patients reviewed have had no obstetric complications- (89.40%). The most common obstetric complication recorded was C-section (8.40%). 41% of women did not have any gynecological complaints. Urine incontinence (24.20%) is the most common complication.

Conclusion: C-sections and urinary incontinence are common obstetric and gynecological events seen in women with neuromuscular disease.

Keywords: *Obstetric events in NMD, Neuromuscular diseases, Myasthenia Gravis, Spinal muscular atrophy, Charcot-Marie-Tooth disease, Muscular dystrophies.*

Introduction

The data on obstetric and gynecological complications in patients with neuromuscular diseases (NMD) is limited and is primarily obtained from various case reports, case series, and small studies.[1-2] Previous studies have found that neuromuscular disorders, although debilitating, generally have a favorable outcome in pregnancy[1-3] yet data on antenatal, perinatal periods are lacking. Further gynecological complications are not commonly reported in these studies. With newer treatments and improved supportive care, many patients are living longer and deciding to have families and neuromuscular physicians are commonly asked to provide guidance during obstetric and gynecological events.[2] In our study, we report both gynecological and obstetric histories of 95 patients diagnosed with various neuromuscular diseases (NMD), i.e., Myasthenia gravis, Myotonic Dystrophy, ALS, Spinal Muscular atrophy, and Charcot-Marie-Tooth disease.

Methods

This is a retrospective chart review of patients diagnosed with various neuromuscular diseases at the University of Missouri, Columbia, from 2012 to 2017. We reviewed the clinic notes from the neurology, obstetrics and gynecology, family medicine, internal medicine clinic visits for each patient. We included patients who have at least one year follow up with us and seen atleast one of the specialists listed above.

We collected data on patient demographics, neuromuscular disease diagnosed, obstetric complications, and gynecologic complications. Data are reported as means ± SEM, and the results reported using prevalence rates. This study was approved by the Institutional Review Board (IRB) at the University of Missouri, Columbia, MO.

Results

Ninety-five female patients were identified. Among them, 97% were Caucasian, and 3% were African-American with a mean age of 47.96 (+/-10.2 years) years as depicted in table 1.

Table 1: Patient demographics

Number of patients	N=95
Mean age	47.96 (+/-10.2)years
Race	Caucasian- 97% African-American- 3%

Neuromuscular diseases identified among them are Myasthenia Gravis (44%), Muscular Dystrophy (23%), Amyotrophic Lateral Sclerosis-ALS (16%), Charcot-Marie-Tooth disease-CMT (10%), and Spinal Muscular atrophy- SMA (7%) as shown in figure 1.

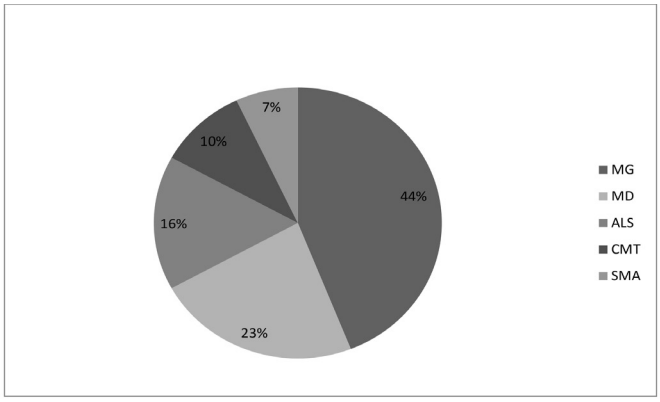

Figure 1. Distribution of the types of neuromuscular diseases evaluated. MG-Myasthenia Gravis, MD-Muscular Dystrophies, ALS-Amyotrophic Lateral Sclerosis, CMT- Charcot-Marie-Tooth disease, and SMA- Spinal Muscular atrophy.

The majority of the patients reviewed had no obstetric complications- (89.40%). In our study group, 40 got pregnant, and the number of pregnancy events recorded was 98. The most common obstetric complication recorded was C-section (8.40%). Other complications recorded were prolonged labor (1.10%) and Placenta Previa (1.10%). Among the study group, patients diagnosed with SMA and CMT, not a single obstetric complication was recorded. Women diagnosed with Myasthenia Gravis reported having the highest obstetric complications among all the neuromuscular diseases reported. 41% of women did not have any gynecological complaints. Urine incontinence (24.20%) is the most common complication, post-menopausal bleeding

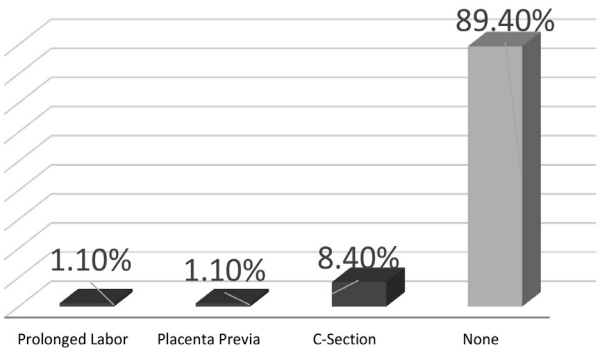

Figure 2. Distribution of the types of OB complications evaluated among women with a neuromuscular disease.

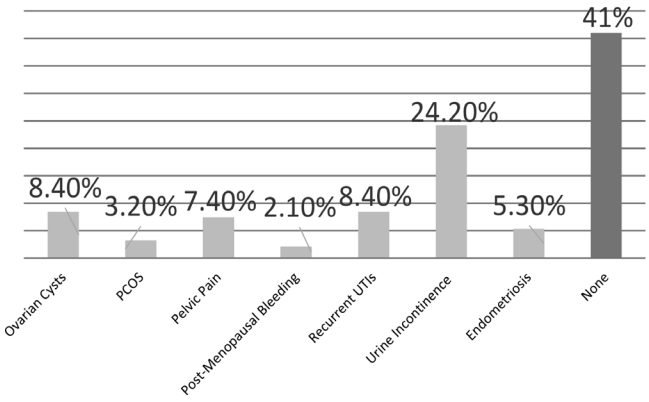

Figure 3. Distribution of the types of GYN complications evaluated among women with a neuromuscular disease.

(2.10%). Other complications were ovarian cysts (8.40%), recurrent UTIs (8.40%), pelvic pain (7.40%), endometriosis (5.30%), Polycystic ovarian syndrome (PCOS-3.20%). Women diagnosed with Myasthenia Gravis reported having the highest obstetric complications among all the neuromuscular diseases reported. The distributions of the obstetric and Gynecological complications, evaluated among the study population are depicted in the figures 2 and 3 respectively.

Discussion

The multi-disciplinary team must take into account managing women considering to become pregnant.[3,6] MG is an auto-immune disorder affecting the women of reproductive age twice more than men.[5] Myasthenia neither has any effect on fertility, and it is not uncommon to witness patients who are pregnant, nor does the pregnancy have any effects on the disease course.[2,5] However, the disease exacerbations are seen mostly in the first trimester and post-partum.[3,5-6] In a retrospective evaluation of pregnant women with myasthenia, the rate of C-section was as high as 78.3%. The rate of C-section in our study is 8.40% for all the NMDs combined. Although C-section is necessitated, vaginal deliveries are considered safe in the absence of any myasthenia crisis.[6]

Muscular dystrophies (MD) are a rare set of genetically inherited diseases, characterized by muscular weakness and wasting.[7] In prior surveys, complications like pre-term labor, placenta previa, and others are reported in myotonic dystrophy type 1. Also, these women have a higher rate of urinary tract infections.[8] In our study, the rate of placenta previa reported was 1.10%.

ALS is uncommon in women of reproductive age, and the association of the disease reported through few case

reports is purely coincidental.[3] We lack data, that would clearly state to limit maternal survival.[3]

CMT is the most common hereditary motor and sensory neuropathies. It is reported through the case reports that pregnancy does not contribute to disease severity[9] and the outcome of pregnancy in these patients is promising with complications not higher than the normal population.[10] In our study, 10% of the patients diagnosed with CMT and as mentioned majority patients reviewed had no obstetric complications (89.40%).

Spinal muscular atrophy is an autosomal recessive neurodegenerative disease characterized by progressive loss of anterior horn neurons.[11] 7% of our study patients diagnosed with SMA and none of them were reported to have any obstetric complication. Although subtype I is fatal, Subtypes II, III & IV may consider pregnancy as they reach the reproductive age.[11] There is no evidence that it affects fertility, and the pregnancy outcomes are at par with the normal population, giving a positive outlook for those who consider becoming pregnant.[11] Although there are risks, the multidisciplinary approach to evaluate each case is strongly recommended.[11]

The data on the association of gynecological complications and neuromuscular disease is not well established. In our study, the most common complication is urinary incontinence in the study patients. In a retrospective study, it was reported that patients with inherited neuromuscular diseases (Muscular dystrophies and Spinal muscular atrophy) develop urinary tract symptoms.[12] The most common presenting complaint was urinary incontinence in this study, as seen in our study group.[12]

Besides these, additional studies are imperative to set the appropriate guidelines for the management of pregnancy and address reproductive health issues in them. The addition of OBGYN physicians to the multidisciplinary neuromuscular disease clinics, where these patients are getting treated can be considered as the survival and quality of life improve in many of our neuromuscular patients.

The limitations of our study are, not all the patients in our study cohort were assessed by the neuromuscular physician during pregnancy. Also, since there is no control group, it is hard to say that the complications recorded in our study group are about the same as the rest of the population. The other limitation is we included only women in our study, as our objective is to describe the obstetric and gynecological complications.

Conclusion

C-sections and urinary incontinence are common obstetric and gynecological events seen in women with neuromuscular disease

Correspondence: Raghav Govindarajan MD.
govindarajanr@health.missouri.edu

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