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Case Report

Successful pregnancy outcome in a woman with myasthenia gravis: Case report and literature review

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Myasthenia gravis (MG) is an acquired neuromuscular autoimmune condition that presents clinically with weakness and fatigue of the skeletal muscles. The case described here is a multidisciplinary management of a 28 yr old primigravida with myasthenia gravis. Although pregnancy with an uneventful course and a good outcome frequently is possible in women who have MG, there are many challenging therapeutic decisions unique to myasthenic women planning pregnancy.

Key words: Myasthenia gravis, neuromuscular autoimmune, skeletal muscles

INTRODUCTION

Myasthenia gravis (MG) is an acquired neuromuscular autoimmune condition that presents clinically with weakness and fatigue of the skeletal muscles. Women should be made aware of the issues and risks related to pregnancy based on the best current evidence available so that they can make an informed decision and successfully complete pregnancy. In the present paper management of pregnancy in a women with myasthenia gravis is discussed in light of the literature review

CASE REPORT

A 28-year-old primigravida who was known to have myasthenia gravis (MG) for the last 4 years attended the antenatal clinic at 9 weeks gestation. It was a planned pregnancy. She had a thymectomy in 2001 and had also had plasmapheresis in the past. She was taking pyridostigmine 60 mg three times a day. Previously, she had suffered from dysphagia, dysarthia and also decreased power in her arms and legs, mainly brought on by stress and tiredness. She was reviewed by the neurologist in the current pregnancy, no dose adjustment was required and apart from slight weakness in shoulder abduction, neck extension and the small muscles of both hands, she was quite well.

Her booking scan showed a live single intrauterine pregnancy. Viral serology and triple tests were normal. She had a detailed anatomy scan at 20 weeks at a tertiary referral centre during which fetal breathing movements were observed. She had regular growth scans at 28, 32, 36 and 38 weeks gestation which were all within normal limits. During the antenatal period, her case was reviewed by a multidisciplinary team comprising of a neurologist, an obstetrician, anaesthetist and a paediatrician. During the antenatal period, her condition remained stable and she was continued on drug therapy. By 38 week 3 days gestation, she was feeling very tired and ultrasound scan showed static growth and reduced amniotic fluid. As she was very keen to try vaginal delivery, the decision to induce labour at 39 weeks was made.

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Epidural anaesthesia was sited early in labour to reduce stress and tiredness. She continued with the pyridostigmine during labour. During labour, she was monitored every half hour for ptosis, dysarthia, dysphagia, muscle strength of arms and legs and respiratory muscles (ability to cough). To shorten the second stage of labour, she had a ventouse delivery. A live baby weighing 2.92 kg was born with Apgar score of 9 at 1 min and 9 at 5 min. While on the postnatal ward, midwives were aware to look out for signs of poor feeding and difficulty in breathing for the baby. Both mother and baby made an uneventful postpartum recovery. Mother and baby were doing well at 6 weeks postnatal check up.

DISCUSSION

Myasthenia gravis (MG) is an acquired neuromuscular autoimmune condition that presents clinically with weakness and fatigue of the skeletal muscles. The disorder is characterized by a decrease in the number of acetylcholine receptors at the neuromuscular plates due to an autoimmune process mediated by antibodies directed against the alpha subunit of the nicotine receptor of the acetylcholine. This disease is twice as common in women as in men and frequently affects young women in second and third decades of life, overlapping with the childbearing years. The treatment of MG in women therefore poses unique and challenging issues to neurologists, obstetricians, anaesthetists and neonatologists, as the safety of both mother and fetus need to be carefully considered when choosing a therapeutic plan.

Batocchi et al. (1999) showed that MG relapsed in 17% of asymptomatic patients who were not on therapy before conception. In patients taking therapy, symptoms improved in 39% of pregnancies, remained unchanged in 42% and deteriorated in 19%. MG symptoms worsened after delivery in 28% of pregnancies. Djelmis et al. (2002) showed that worsening of symptoms is more likely during first trimester and first month postpartum. There is no increase in incidence of spontaneous abortion, growth restriction, pre-eclampsia or prematurity in women with MG though frequency of premature rupture of membranes is increased.

Ferrero et al. (2005) reported that anticholinesterase drugs are the mainstay of treatment when MG symptoms are not satisfactorily controlled, corticosteroids, azathioprine and in some cases, cyclosporine A can be used. Until information is available regarding safety, mycophenolate mofetil should be discontinued during pregnancy. Bermas and Hill, (1995) reported that cyclosporine can cause fetal myelosuppression, prematurity and spontaneous abortion. Fetus exposed to azathioprine has an increased risk of myelosuppression. Pyridostigmine is considered safe during pregnancy when used at the recommended dosage of less than 600 mg/day. An isolated case report by Nissen and Shah (2000) documented severe neonatal MG (NMG), growth retardation, microcephaly, joint contractures, and dysmorphic features in an infant born to a myasthenic mother who was taking four to eight times the recommended daily dosage of pyridostigmine during pregnancy (1,500 to 3,000 g/day). Watson et al. (1984) reported that plasmapheresis or Intravenous immunoglobulin (IVIG) can be used to manage severe MG symptoms or crisis during pregnancy or to avoid the use of immunosuppressant with potential teratogenic effects. Magnesium sulfate for the management of eclampsia should be used cautiously in myasthenic women, as it can precipitate weakness by interfering with neuromuscular transmission.

Regarding the mode of delivery, a vaginal birth should be preferred as the uterus is not affected by autoantibodies. Djelmis et al. (2002) reported that cesarean section should only be performed if there is an obstetric indication. MG usually does not change the course of the first phase of labour, as it does not affect smooth muscles. Striated muscle involved in the voluntary expulsive effort of the second phase of labor may be prone to fatigue, and the obstetrician should be prepared to assist in this stage, if needed, with forceps or vacuum extraction. Myasthenic fatigue occurring during labor can be helped by cholinesterase inhibitors. These should be administered parentally because of unpredictable gastric absorption. Neostigmine doses of 1.5 mg intramuscularly or 0.5 mg intravenously are equivalent to 60 mg of pyridostigmine taken orally.

Transient neonatal MG is a syndrome that affects 10 to 20% of newborns of myasthenic mothers and occurs shortly after birth (Plauche, 1991). Symptoms develop most commonly, 12 to 48 h after birth, and include generalized weakness and hypotonia, difficulty in feeding, feeble cry, ptosis, facial paresis, and respiratory distress. Placental transfer of antibodies against the fetal acetylcholine receptor can cause arthrogryposis multiplex congenita (AMC) in some infants born to myasthenic women. The syndrome consists of non-progressive multiple congenital joint contractures developing in uterus resulting from lack of fetal movements, preventing normal joint formation. Some infants born with AMC have survived, but AMC can lead to intrauterine fetal death or neonatal death because of pulmonary hypoplasia and polyhydramnios (Vincent et al., 1995; Polizzi et al., 2000). Ultrasound testing should be used to monitor fetal movements and to detect the development of joint contractures in uterus.

Breast feeding is not contraindicated in women with MG although serum antibodies versus acetylcholine receptors might reach the new born via breast milk, enhancing neonatal MG. Although pregnancy with an

uneventful course and a good outcome frequently is possible in women who have MG, there are many challenging therapeutic decisions unique to myasthenic women planning for pregnancy. Management should be aimed at optimizing muscle strength in the mother, minimizing maternal risk of bulbar and respiratory exacerbation, protecting the fetus, and maintaining integrity of the pregnancy. Women should be made aware of the issues and risks related to pregnancy based on the best current evidence available so that they can make an informed decision and successfully complete pregnancy.

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