MYASTHENIA GRAVIS IN PREGNANCY

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SUMMARY

Outcome of 5 pregnancies in five women with myasthenia gravis in reported. One patient was diagnosed to have myasthenia during the current pregnancy, the duration of disease ranged from 1-5 years in rest of the patients. Two patients had relapse of myasthenia during antenatal and postpartum periods, one of them developed myasthenic crisis. Preterm rupture of membranes was seen in one patient. Labour was rapid and uncomplicated in all patients and they delivered vaginally. No baby was born with neonatal myasthenia.

INTRODUCTION

Myasthenia gravis (MG) is an autoimmune neuromuscular disorder in which the patient suffers from weakness and fatiguability of skeletal muscles. It is primarily a disease of young women and is often associated with pregnancy (Fennel and Ringel 1987). Pregnancy exerts significant effect on myasthenia gravis. Symptoms may first appear during pregnancy and remission may take place following parturition (Collins 1897 : Sinkla 1899). The effect of pregnancy is unpredictable not only in different women but also in different pregnancies in the same woman (Eden and Gall 1983, Plauche 1979). The disease in the mother may pose a risk of neonatal myasthenia in the new born. Management of myasthenia needs to be modified in pregnancy. In addition, standard therapy for many pregnancy related disorders like preeclampsia, preterm labour and chorioamnionitis may need to be altered. This study presents current pregnancies in 5 cases of myasthenia gravis seen over 10 years and review of existing literature with special reference to management of myasthenia in pregnancy.

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MATERIAL AND METHODS

Five pregnant women were admitted to the labour room of Nehru Hospital, Postgraduate Institute of Medical Education and Research, Chandigarh with diagnosis of myasthenia gravis in pregnancy during the period between January 1982 to July 1992. During the period, 34184 deliveries took place in this hospital. The diagnosis of myasthenia was made on the basis of clinical presentation, electrophysiological tests and response to neostigmine. The clinical details and status of myasthenia during pregnancy are given in Table I.

One patient was diagnosed to have myasthenia for the first time during the current pregnancy, rest of the patients were in remission just prior to the pregnancy. All the patients were treated with neostigmine. One of them (R) was on prednisolone in addition to cholinergic medication. Three patients had undergone thymectomy. Two patients have been in complete remission and off medication for 1 year and 3 years respectively. Two patients had a relapse during the antepartum and postpartum periods, one of them developed myasthenic crisis and required ventilatory support.

The result of pregnancy outcome are given in Table II. No antenatal complication was observed in any of the patients. Labour was induced in two patients for post-datism. One patient had preterm premature rupture of membranes at 32 weeks of gestation. Labour was of short duration. All patients had normal vaginal delivery and babies were born with good Apgar score. None of the babies developed neonatal myasthenia.

DISCUSSION

Prevalence of MG is reported to be 12-64 cases per million population (Kurtzke 1978). It can affect both sexes at all ages. However, most large series report it to be twice as common in females as males. The incidence of disease is at its peak in the third decade in females, so it predominantly affects women in their reproductive years. Pregnancy may have a variable effect on MG. Plauche (1991) reviewed 322 pregnancies in 225 myasthenic mothers. There was no change in the status of myasthenia in 31.5% of pregnancies, 28.6% displayed at least partial remission and exacerbation of MG occurred in 41% of the pregnancies Exacerbation of MG in pregnancy was observed in two of our cases. It was seen both in antenatal as well as in postpartum periods in one case and responded to increase in the dose of anticholinesterase drugs. The second patient had myasthenic crisis during the antenatal period and required ventilatory support. Many changes commonly associated with pregnancy can result in worsening of MG. Nausea and vomiting of early pregnancy may lead to inability to retain anticholinestrase medication. Anxiety and normal physiological stresses associated with pregnancy may be partially responsible for deterioration of MG (Sneddon 1980). Increased renal clearance, expanded blood volume and erratic gastrointestinal absorption of oral drugs alter the pattern of medication dosing for control of symptoms.

The exacerbation of MG may lead to myasthenic crisis and death of the mother. Maternal mortality risk is

Table I

Status of Myasthenia Gravis in Pregnancy

No.	Age	Parity	Duration	Myasthenia Gravis Treatment		State of disease prior to pregnancy	Effect Pregnancy on MG	
				Medical	Surgery		Antepartum	Postpartum
1.	24 yr	P3+0+0+3	8 months	Neostigimine	-	Diagnosed in pregnancy	Relapse	Relapse
2.	28 yr	P1+0+1+1	5 years	Neostigmine	Thymectomy (3 yrs)	Remission not on treatment for one year	Remission	Remission
3.	25	P1+0+0+1	2 yrs	Neostigmine	-	Remission on treatment	Remission	Remission
4.	27 yr	PGR	7 yrs	Neostigmine	Thymectomy (6 yrs)	Remission no treatment	Remission	Remission
5.	22 yr	P1+0+0+1	1 yr	Neostigmine/ Prednisolone	Thymectomy (9months)	Relapse on treatment	Myasthenic crisis	Relapse

Table II

Pregnancy out come in myasthenia gravis

No.	Age	Parity	Antenatal complication	POG (weeks)	Type of Delivery	Perinatal outcome		Neonatal MG	Breast Feeding
1.	24 yrs	P3+0+0+3	-	41	NVD	LB/F	3.4 kg	-	-
2.	28 yrs	P1+0+1+1	-	41	NVD	LB/M	2.5 kg	-	+
3.	25 yrs	P1+0+0+1	-	38	NVD	LB/F	2.7	-	+
4.	27 yrs	PGR	-	39 + 2	NVD	LB	2.7	-	+
5.	22 yrs	P1+0+0+1	PROM	32+5	NVD	LB/M	2.5 kg	-	+

reported to be 40 per 1000 live births (Plauche 1991). Scott (1977) reported an inverse relationship between duration of MG and maternal mortality risk, however it has not been supported by others (Plauche et al 1991). An increased risk of preterm labour has been noted in some series, but not in others (Chamber et al 1967; Plauche 1983). Anticholinesterase drugs are the first line treatment in almost all case of MG. They are not teratogenic and should be continued during pregnancy. The dosage may require frequent adjustment because of irregular intestinal absorption and changing renal excretion rate in pregnancy. Parenteral therapy should be preferred in moderate to severe cases during labour. Bingle et al (1979) recommended continued subcutaneous neostigmine therapy using a pump delivery system. Rowland (1980) expressed caution using parenteral medication. He observed that cholinergic crisis were rare when medication is administered orally. Corticosteroids result in improvement in a large percentage of cases of MG. There is a small risk of cleft lip and cleft palate with use of steroids in pregnancy. (Harris 1956). Steroids should be maintained at the lowest possible dose. In fact steroid induced remission is one of the safest periods for myasthenic to undergo pregnancy. The delivery and surgical procedures are better manageable in patients who have achieved remission on steroids (Plauche 1991).

Thymectomy has been recommended for many years for the treatment of MG. Ip et al (1986) reported a case of MG who had undergone thymectomy for myasthenic crises during pregnancy. The

patient had transsternal thymectomy performed at 17 weeks gestation. The pregnancy proceeded to an uneventful delivery at 39 weeks. Three patients had undergone thymectomy prior to pregnancy in this series. One patient who had conceived soon after thymectomy had myasthenic crisis in the antenatal period, while the other two were in remission.

The physical stress of labour and delivery increases myasthenic weakness. The patients, should be carefully monitored for respiratory impairment in labour. The dose of anticholinesterase and steroids should be increased and they should be administered parenterally. MG dose not affect the uterine muscle and vaginal delivery is possible with low forceps, if late progress is slow. Caesarean section is unnecessary except for independent obstetrical reasons. All the patients had normal vaginal delivery.

Acetyl choline receptor (ACWR) antibodies are passively transferred from mother to infant and cause neonatal myasthenia in 10-15 percent of cases. None of the babies born to our patients developed neonatal MG. There is no definite relationship between neonatal myasthenia and the severity or duration of maternal MG; it may occur even when mother is in remission (Elias et al 1979). Neonatal MG usually appears during the first day after birth, but may be delayed upto 4 days. It may cause hypotonia, feeding difficulties, feeble crying and respiratory distress. Cranial innervated muscles are less commonly involved and eye signs are observed in less than 20 percent of cases (Namba et al 1970). Neonatal reflexes such as grasp and Moro reflexes are absent. Diagnosis is usually obvious and can be confirmed by one mg intramuscular edrophonium. Spontaneous remission occurs in 2 to 4 weeks of birth (Elias et al, 1979). Although neonatal myasthenia is transient, most affect infants will need treatment with pyridostigmine or neostigmine. Medication should be given 30 minutes before feeding. The dose should be sufficient to allow adequate feeding and to prevent respiratory problems. The normal strength is not necessary, as it increases risk of muscarinic complications. Careful attention to secretions is critical and addition of atropine may be necessary. Cholinergic weakness may develop as the disease spontaneously resolve, so cautious monitoring anticholinesterase medication is essential.

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