Weakness in pregnancy – expect the unexpected

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Summary: Guillain-Barré syndrome (GBS) is rare in pregnancy with an incidence estimated to be between 1.2 and 1.9 cases per 100,000 people annually, and it is generally accepted that it carries a high maternal risk. Delayed diagnosis is common because the initial non-specific symptoms may mimic changes in pregnancy. GBS should be considered in any pregnant patient complaining of muscle weakness, general malaise, tingling of the fingers and respiratory discomfort. This case aims to highlight the importance of early diagnosis, allowing prompt initiation of the immunomodulatory treatments which have been shown to improve outcome alongside multidisciplinary care.

Keywords: Guillain-Barré syndrome, acute inflammatory demyelinating polyradiculopathy, pregnancy

CASE REPORT

An 18-year-old gravida 5, para 1 presented at 26 weeks of pregnancy describing pain across her shoulders and upper back, 'pins and needles' in her fingers and shortness of breath. She had normal reflexes and, initially, there was no demonstrable weakness. She was admitted with a provisional diagnosis of 'hyperventilation'. It was considered that her symptoms could be psychological given the normal examination findings and blood tests. However, over the next eight days she developed an ascending weakness with speech and swallowing difficulties. She had bilateral lower motor neurone facial weakness, bulbar speech, flaccidity in the limbs, areflexia and flexor plantar responses. There was reduction in all sensory modalities in her arms and legs. A diagnosis was made of Guillain-Barré syndrome (GBS) and this was supported by the results of a lumbar puncture: a raised cerebrospinal fluid (CSF) protein of 1.66 g/L and a normal cell count. She had no history of preceding illnesses and serological tests for *Campylobacter*, Cytomegalovirus, Epstein-Barr virus (EBV) and *Mycoplasma pneumoniae* were negative. Antibodies to the ganglioside GQ1b were positive. On day nine she developed progressive respiratory failure and was moved to the critical care unit for regular airway assessment and subsequent ventilation. A five-day course of intravenous immunoglobulins (0.4 g/kg/day) was commenced the same day. Episodic hypertension and tachycardia, representing autonomic dysfunction, were treated with labetalol. From day 16 onwards she was gradually weaned from mechanical ventilation as her muscle power improved. Throughout her admission regular fetal monitoring and ultrasonography demonstrated a normally growing fetus. She was discharged from critical care at 29 + 5 weeks

gestation to a neuro-rehabilitation centre where she made an excellent recovery. There was spontaneous rupture of the membranes at 39 weeks, progressing to a normal vaginal delivery of a girl weighing 3 kg with an Apgar score of eight at one minute and nine at five minutes.

DISCUSSION

GBS is an acute inflammatory demyelinating polyradiculopathy (AIDP).² It is thought to be immune-mediated, but its pathogenesis remains uncertain.⁵ About two-thirds of patients have had an infection within the previous six weeks, most commonly a flu-like illness or gastroenteritis. Implicated infectious agents include *M. pneumoniae*, *Campylobacter jejuni*, Cytomegalovirus and EBV.² The preceding infection may cause an autoimmune response with the patient's antibodies being triggered to attack various components of the peripheral nerve myelin and sometimes the axon.⁵ GBS typically presents with pain, numbness, paraesthesia or weakness in the limbs and this can be mistaken for a psychological complaint,² leading to delay in diagnosis and treatment. The interval from onset of symptoms to diagnosis in pregnancy was reported to be more than one week in 50% of cases in one review of 22 pregnant patients with GBS, attributed to initial non-specific symptoms of GBS mimicking common pregnancy complaints.¹ The diagnosis of GBS depends on clinical criteria supported by CSF findings and neurophysiological testing. Essential clinical criteria are progressive motor weakness and areflexia.⁶ Other features include respiratory failure, facial nerve involvement, bulbar and ocular nerves (in the Miller-Fisher variant), mild sensory symptoms and autonomic dysfunction. The disease reaches its peak at one to four weeks and then, after a variable plateau phase, recovery occurs over weeks or months.² The CSF typically shows raised protein content and a normal cell count, but it may be normal in the first week.^{1,6} Nerve conduction studies are abnormal in approximately 90% of cases, showing multi-focal demyelination associated with secondary axonal

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Table 1 Reported cases of Guillain-Barré syndrome in pregnancy from 1986 to 2007

No	(Reference)	Gestation (weeks)	Specific treatment	Ventilatory support	Mode of delivery	Gestation at delivery	Maternal outcome	Aetiology
1	(12)	38	Plasmapheresis	No	CS	40	Died three months postpartum	Unknown
2	(13)	14	Plasmapheresis	Yes	TOP	16	Died five months postpartum	CMV
3	(14)	30	No	Yes	PTL	34	Died one month postpartum	Unknown
4	(15)	40	Plasmapheresis	No	Forceps		Recovery	Unknown
5	(3)	32	No	No	CS	39	Recovery	Unknown
6	(16)	18	No	Yes	Maternal death	25	Rehabilitation	CMV
7	(16)	18	No	Yes	Forceps	38	Residual disease	CMV
8	(17)	21	Plasmapheresis	Yes	CS	37	Recovery	Unknown
9	(18)	32	No	No	CS	40	Recovery	Unknown
10	(19)	26	Plasmapheresis	No	CS	33	Recovery	Unknown
11	(19)	26	Plasmapheresis	No	SVD	36	Recovery	CMV
12	(19)	32	Plasmapheresis	No	CS	35	Residual disease	CMV
13	(20)	16	Plasmapheresis	No			Recovery	Unknown
14	(21)	35	No	No	CS	38	Residual disease	Unknown
15	(21)	36	Plasmapheresis	No	CS	36	Recovery	Unknown
16	(22)	36	Plasmapheresis	Yes	CS	36	Recovery	Unknown
17	(23)	36	Plasmapheresis	No	CS	36	Residual disease	Unknown
18	(23)	35	No	No	CS	38	Residual disease	Unknown
19	(24)	24	Plasmapheresis	No	SVD	35	Recovery	CMV
20	(25)	29	Plasmapheresis	No	SVD	40	Recovery	Rubella
21	(26)	29	No	No	SVD	40	Recovery	Unknown
22	(27)	10	Plasmapheresis	No	Miscarriage	20	Recovery	CMV
23	(28)	29	IVIg/Plasmapheresis	Yes	SVD	38	Recovery	CMV
24	(29)	34	IVIg/Plasmapheresis	Yes	SVD	37	Recovery	Unknown
25	(30)	25	IVIg	No	SVD	38	Recovery	Unknown
26	(7)	7	IVIg/Plasmapheresis	Yes	CS	38	Recovery	Unknown
27	(7)	24	No	No	CS	41	Recovery	EBV
28	(31)	6	IVIg	Yes	TOP	9	Recovery	CMV
29	(32)	15	IVIg	Yes	SVD	40	Recovery	Hepatitis A
30	(33)	21	Plasmapheresis	No	CS	40	Recovery	Unknown
31	(34)	27	IVIg	No	SVD	37	Recovery	EBV
32	(35)	4	Plasmapheresis	No	TOP	18	Recovery	Unknown
33	(1)	20	IVIg	No	CS	39	Residual disease	Unknown
34	(36)	36	IVIg	No	SVD	41	Residual disease	Unknown
35	(37)	15	Plasmapheresis	No	SVD	26	Probably recovery	CMV
36	(37)	15	Plasmapheresis	No	SVD	26	Probably recovery	CMV
37	(38)	30	No	No	CS		Residual disease	Unknown
38	(39)	16	IVIg	No	Unknown		Recovery	Unknown
39	(40)	19	IVIg	Yes	CS	37	Recovery	Unknown
40	(40)	13	IVIg	No	CS	32	Residual disease	Unknown

CMV = cytomegalovirus; CS = caesarean section; EBV = Epstein-Barr virus; PTL = preterm labour; SVD = spontaneous vaginal delivery; TOP = termination of pregnancy

degeneration.⁶ Mechanical ventilation may be required within 24 hours of symptom onset. Up to 20% of patients are disabled after one year as a result of GBS² and a maternal mortality of 7% has been quoted (Table 1).

The management of GBS in pregnancy is similar to that in the non-pregnant population⁷ and includes intravenous (i.v.) immunoglobulins and plasmapheresis. It is important that physicians and obstetricians manage the patient jointly.¹ Ventilatory support is required in 25–30% of non-pregnant patients,² but respiratory problems may be worse in pregnancy because of splinting of the diaphragm.⁸ In cases requiring ventilatory support in pregnancy, the risk of premature birth has been noted to be greatly increased.⁷ Thromboprophylaxis is indicated given hypercoagulability of pregnancy and immobility. Routine screening for respiratory and urinary infections is recommended. Labetalol is the agent of choice for management of autonomic dysfunction in the gravida, manifested by fluctuating pulse and blood pressure.² This drug allows good blood pressure control without interfering with placental or fetal blood flow.⁹

A Cochrane review has shown that there are no outcome differences between i.v. immunoglobulins treatment and

plasmapheresis.⁴ In pregnancy, the safety of i.v. immunoglobulins has been established based on its use in treating conditions, such as maternal idiopathic thrombocytopenia purpura and fetal alloimmune thrombocytopenia.¹ We found 12 cases of GBS in pregnancy in which i.v. immunoglobulins have been used, with no report of treatment-induced maternal or fetal complications (Table 1). In patients who have shown no signs of recovery within two weeks, a second course of i.v. immunoglobulins has shown to be beneficial.¹⁰ The benefit of plasmapheresis is great when started within seven days of disease onset, although it still provides some advantage within 30 days.⁵ On grounds of equivalent efficacy, similar cost, greater convenience and ease of administration, i.v. immunoglobulins have replaced plasmapheresis to be the preferred treatment in many hospitals.¹¹

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