



Plasma exchange for HELLP syndrome complicated by persistent microangiopathic haemolytic anaemia resulting in a rapid recovery of renal function

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Introduction

HELLP syndrome affects 10-20% of patients with pre-eclampsia (PET) and typically resolves with supportive treatment following placental delivery¹. We report a case of HELLP syndrome complicated by ongoing haemolysis, oliguria and uraemia.

A previous case series has documented success with Therapeutic Plasma Exchange within 24 hours of delivery for HELLP patients with rising bilirubin, creatinine and severe thrombocytopenia². Interestingly, in this case, a single plasma exchange completed on day four for worsening renal failure resulted in a rapid recovery of renal function.

The patient

A previously fit and well primigravida with twins was booked for an elective caesarean section but presented to triage at 35 weeks gestation. She was in active labour and reported several days of feeling unwell with vomiting prior to admission.



Case summary

Admission

Observations were normal (BP 128/82) and labour was progressing rapidly. She was transferred to theatre where she received a spinal anaesthetic, prior to admission blood tests being reported.

Delivery

In theatre she was fully dilated and delivered vaginally with a 2300ml post-partum haemorrhage due to atony. She required 2 units RBCs, 2 units cryoprecipitate and 2 units FFP. A Bakri balloon was inserted and an arterial line sited.

HELLP was diagnosed post-partum. Admission bloods (see results table) demonstrated haemolysis, elevated liver enzymes, thrombocytopenia, an acute kidney injury and raised Hb. The latter reflecting haemoconcentration following several days of vomiting.

Post-partum Day 1 and 2

The patient developed oedema, hyperreflexia, clonus and hypertension requiring medication (oral nifedipine). Haemolysis and renal dysfunction were ongoing with worsening oliguria and uraemia.

Post-Partum Day 3

The oedema, hyperreflexia and clonus resolved. Platelet count and liver function were also stabilising. However, renal function continued to deteriorate. A blood film showed microspherocytes and a diagnosis of Microangiopathic Haemolytic Anaemia (MAHA) related to severe PET was made, with a plan for Therapeutic Plasma Exchange (TPE).

Atypical HUS was considered and screened for following discussion with the national referral centre, prior to TPE.

Post-Partum Day 4

Single TPE treatment.

Post-Partum Day 5-9

The patient's renal function rapidly recovered with a more gradual resolution of her thrombocytopenia.

ADAMTS13 and complement dysfunction tests were reported after the patient's recovery and were normal.

The agreed diagnosis was HELLP with kidney injury due to thrombotic microangiopathy. The patient's renal function has remained normal 6 months after delivery.

Blood results

	Admission (0600)	Post delivery (0900)	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 9
Hb	176	149	111	131	126	119	109	100	102
PLTS	78	70	49	70	78	74	74	78	153
Urea	13.8	14.5	15.9	20.1	24.0	27.2	17	11.3	4.6
Creatinine	239	256	239	250	268	272	146	120	85
LDH	622	627	662	708		551		295	238
AST	135	113	102	68	61	58	70	88	66
Haptoglobins	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1
Base Excess		-13.6	-8.7	-9.1	-8.4	-6.3	-4.4	0.0	
Lactate		4.5	1.1	1.5	1.8	1.0	2.0	1.1	

The highlighted column shows the day Therapeutic Plasma Exchange treatment was delivered.

Discussion

This case demonstrates the value of TPE given four days post-partum for MAHA induced renal failure and builds upon published experience². We recommend that clinicians consider TPE for patients with HELLP syndrome complicated by MAHA and renal dysfunction.

References

1. Banerjee A, Cantello S. Maternal critical care part 2. BJA Education 2021, 21(5):164-171.
2. Erkurt M, Sarici A, Kuku I, et al. The effect of therapeutic plasma exchange on management of HELLP syndrome: The report of 47 patients. Transfusion and Apheresis Science, 2021, Volume 60, Issue 5, 103248.