

‘Not always pre-eclampsia: a story of atypical HUS in pregnancy.

Dr Hannah Gamblin, ST6, RVI, Newcastle upon Tyne.



The Newcastle upon Tyne Hospitals
NHS Foundation Trust

Background

Atypical HUS (haemolytic uremic syndrome) is a condition of the microvasculature, giving rise to:



Its pathophysiology has some obvious overlap with similar conditions such as TTP, pre-eclampsia and HELLP. Treatment of aHUS usually involves plasma exchange, complement activation modulators (e.g. Eculizumab) and dialysis to treat renal failure. Here, we present a case of aHUS in a pregnant woman, the diagnostic and management challenges.

Case Presentation

Mrs A was a 32-year-old primigravida, diagnosed at 28 weeks with gestational thrombocytopenia, which was managed conservatively. She was admitted for induction of labour for small for gestational age (5th centile on scan after low SFH measurement at 35 weeks) and developed what was initially diagnosed as severe pre-eclampsia intrapartum, with a BP of 172/92 and proteinuria. Blood tests were as follows:

Discussion

This case highlights the diagnostic challenges of renal disease in pregnancy. The table below highlights typical presentations of some overlapping conditions in pregnancy.

aHUS results from a genetic abnormality that leads to erroneous complement activation, triggers microthrombi to develop in the vasculature, leading to end organ damage. Pregnancy is a state where complement production is increased, thereby exposing these genetics errors. Traditional treatment of aHUS involved plasma exchange and dialysis, with up to 70% progressing to end stage renal failure. Eculizumab is a recombinant monoclonal antibody that blocks C5 activation, which stops the production of the membrane attack complex, a protein required for complement activation, and in a small case series has produced fantastic results.

In our case, it resulted in remission, and has been used in pregnancy with good results and no safety concerns. The big question that has arisen from Eculizumab treatment, is not its use, but when to discontinue it, as there remains a high rate of relapse and appears to be no consensus over an appropriate timescale.

Condition	Elevated liver enzymes	Timing of onset	Confirmatory testing	Unique Clinical Manifestation
aHUS	Not common	75% post-natal period	Complement protein testing	Marked renal involvement
TTP	Not common	2 nd – 3 rd trimester	ADAMTS 13 assay	Neurological symptoms
Pre-eclampsia	Can be elevated	Usually 3 rd trimester	PCR	HTN, Proteinuria and elevated liver enzymes
HELLP	Highly elevated	Usually 3 rd trimester	Haematology, biochemistry	HTN, proteinuria

Test	Result	Test	Result
LDH	3187	Urea	18.1
IgM	0.68	Creatinine	388
Haptoglobin	<0.03	ALT	19
IgA	1.01	Hb	72
IgG	4.5	Platelets	51

She underwent emergency caesarean section shortly after due to decelerative CTG and blood stained liquor. Frank haematuria was also noted at the time. This significantly worsened in the post-natal period, with haematuria and significant oliguria. After transfer to a dialysis unit, a diagnosis of atypical HUS was made and Mrs A was started on eculizumab. This led to a marked improvement in her renal function, allowing her to discontinue dialysis and be eventually discharged.

Take home message

aHUS is a rare but important differential, whose management has been revolutionised in a small case series of women by Eculizumab, warranting further research into its use in pregnancy