UKOSS

UK Obstetric Surveillance System

Thrombotic Microangiopathy Associated Pregnancy Acute Kidney Injury (TMA Associated Pregnancy AKI) 03/21

Data Collection Form - CASE

Please report all women giving birth between 01/07/2021 and 30/06/2022

Case Definition:

Please report any pregnant women with:

a rise in serum creatinine to >250 µmol/l

AND a platelet count <150x10^9 L

Exclude

Women established on renal replacement therapy (dialysis) prior to the acute kidney injury (AKI) episode

Case ID Number: | | | | | | |

Royal College of Obstetricians and Gynaecologists

Bringing to life the best in women's health care

Please return the completed form to:

ukoss@npeu.ox.ac.uk

UKOSS
National Perinatal Epidemiology Unit
University of Oxford, Old Road Campus, Oxford, OX3 7LF

Phone: 01865 617764 / 617774

Reporting Month: _____

Reporting Hospital: _____

NPEU

Instructions

1. Please do not enter any personally identifiable information (e.g. name, address or hospital number) on this form.
2. Please record the ID number from the front of this form against the woman's name on the table provided in the UKOSS folder.
3. Fill in the form using the information available in the woman's case notes.
4. Tick the boxes as appropriate. If you require any additional space to answer a question please use the space provided in section 7.
5. Please complete all dates in the format DD/MM/YY, and all times using the 24hr clock e.g. 18.37
6. If codes or examples are required, some lists (not exhaustive) are included on the back page of the form.
7. If the woman has not yet delivered, please complete the form as far as you are able, excluding delivery and outcome information, and return to the UKOSS Administrator. We will send these sections again for you to complete two weeks after the woman's expected date of delivery.
8. If you do not know the answers to some questions, please indicate this in section 7.
9. If you encounter any problems with completing the form please contact the UKOSS Administrator or use the space in section 7 to describe the problem.

Section 1: Woman's details

1.1 Year of birth Y Y Y Y

1.2 Ethnic group[1]* *(enter code, please see back cover for guidance)* ☐☐

1.3 Height at booking ☐☐☐ cm

1.4 Weight at booking ☐☐☐.☐ kg

1.5 Smoking status

never ☐ gave up prior to pregnancy ☐

current ☐ gave up during pregnancy ☐

Section 2: Previous Obstetric History

2.1 Gravidity

Number of previous completed pregnancies beyond 24 weeks ☐☐

Number of previous pregnancies less than 24 weeks ☐☐

*For guidance please see back cover

Section 3: Previous Medical History

Section 3a: Previous or ongoing kidney disease

3a.1 Did the woman have any previous or pre-existing kidney disease? Yes ☐ No ☐

If Yes, what was the underlying disease or condition causing the CKD?

_____

3a.2 Has this woman received dialysis or haemofiltration prior to this pregnancy? Yes ☐ No ☐

3a.3 Has the woman received a kidney transplant? Yes ☐ No ☐

If Yes, date of most recent transplant? D D / M M / Y Y

3a.4 What is the most recent serum creatinine prior to pregnancy? ☐☐☐ µmol/L

Date measured D D / M M / Y Y ***OR*** tick if not available ☐

Section 3b: Previous Thrombotic Microangiopathy (TMA) related events

3b.1 Did the woman have any previous known thrombotic microangiopathy? (Low platelets and haemolysis (raised LDH, low platelets, haemoglobin, low haptoglobin, fragments on blood film – not all required))

Yes ☐ No ☐ Not known ☐

If no or not known, *please go to section 3c*

3b.2 What was the cause considered to be? *(please tick one)*

Atypical haemolytic uraemic syndrome ☐
Thrombotic thrombocytopenic purpura ☐
Pre-eclampsia / HELLP syndrome ☐
Other ☐

If Other, please specify _____

3b.3 Was treatment ever given to block the complement pathway (e.g. eculizumab)?

Yes ☐ No ☐ Not known ☐

Section 3c: Other Past Medical History

3c.1 Did the woman have any other pre-existing medical problems prior to pregnancy? *(tick all that apply)*[3]*

Chronic Hypertension (Blood pressure ≥ 140/90 before 20 weeks gestation) ☐
Type 1 Diabetes ☐
Type 2 Diabetes ☐
Cardiac Disease ☐
Lung Disease ☐
Autoimmune disease (e.g. Systemic Lupus Erythematosus) ☐
Previous Venous Thromboembolic Events ☐
Other ☐

If Other, please specify _____

*For guidance please see back cover

Section 4: This Pregnancy

Section 4a:

4a.1 Final Estimated Date of Delivery (EDD)[4]* D D / M M / Y Y

4a.2 Was antenatal care undertaken in the usual hospital for this woman's area of residence?

Yes ☐ No ☐

If No, please indicate reasons for care at different hospital *(please tick one)*

Referred to a tertiary centre because of underlying medical condition ☐
Patient preference ☐
Other ☐

If Other, please specify _____

4a.3 Was this pregnancy a multiple pregnancy? Yes ☐ No ☐

If Yes, specify number of fetuses ☐

4a.4 Did the woman receive any of the following during or after this pregnancy up to the point of discharge? *(tick all that apply)* Yes ☐ No ☐

	Before AKI	After AKI
Aspirin (low dose)	☐	☐
Low Molecular Weight Heparin	☐	☐
Unfractionated heparin	☐	☐
Non Steroidal Anti-Inflammatory medication (e.g. ibuprofen, diclofenac)	☐	☐
Gentamicin	☐	☐
Amikacin	☐	☐
Vancomicin	☐	☐
Angiotensin Converting Enzyme Inhibitor e.g. enalapril, tacrolimus	☐	☐
None of the above	☐	☐

4a.5 Did this woman have any of the following in this pregnancy? *(tick all that apply)*

Pregnancy Induced Hypertension ☐
Pre-eclampsia ☐
HELLP ☐
Eclampsia ☐
Acute Fatty Liver of Pregnancy ☐
Antepartum Haemorrhage ☐
None of these conditions ☐

*For guidance please see back cover

4a.6 Please record the lowest levels of the following *(as recorded on local electronic results system e.g. <0.1)*

	Lowest level	Units	Date measured	Tick if not measured
Creatinine			D D / M M / Y Y	☐
Haemoglobin			D D / M M / Y Y	☐
Platelets			D D / M M / Y Y	☐
Lactate Dehydrogenase (LDH)			D D / M M / Y Y	☐
Complement (C3)			D D / M M / Y Y	☐
Complement (C4)			D D / M M / Y Y	☐
Fibrinogen			D D / M M / Y Y	☐
Prothrombin Time			D D / M M / Y Y	☐
D-Dimer			D D / M M / Y Y	☐

4a.7 Please record the highest levels of the following *(as recorded on local electronic results system e.g. <0.1)*

	Highest level	Units	Date measured	Tick if not measured
Creatinine			D D / M M / Y Y	☐
Lactate Dehydrogenase (LDH)			D D / M M / Y Y	☐
Lactate			D D / M M / Y Y	☐
Aspartate Aminotransferase (AST)			D D / M M / Y Y	☐
Alanine Aminotransferase (ALT) - if AST not available			D D / M M / Y Y	☐
C Reactive Protein			D D / M M / Y Y	☐
Haptoglobin			D D / M M / Y Y	☐
Fibrinogen			D D / M M / Y Y	☐
Prothrombin Time			D D / M M / Y Y	☐
D-Dimer			D D / M M / Y Y	☐
Platelets			D D / M M / Y Y	☐

4a.8 Please record the following blood pressures (BP) taken during the AKI episode

	Value (mmHg)	Date	Tick if not measured
Highest Systolic BP		D D / M M / Y Y	☐
Highest Diastolic BP		D D / M M / Y Y	☐
Lowest Systolic BP		D D / M M / Y Y	☐
Lowest Diastolic BP		D D / M M / Y Y	☐

4a.9 Did the woman present with any of the following symptoms?

	Tick if yes	Date	Duration (days)
Severe headache	☐	D D / M M / Y Y	☐☐
Visual disturbances	☐	D D / M M / Y Y	☐☐
Severe epigastric or right upper quadrant pain	☐	D D / M M / Y Y	☐☐
Pulmonary oedema	☐	D D / M M / Y Y	☐☐

4a.10 Was proteinuria measured during pregnancy (ACR, PCR or 24 hour urine collection)? Yes ☐ No ☐

If Yes, please record the highest proteinuria measured giving test, result and date

Test	Units	Date	Result
_____	_____	D D / M M / Y Y	_____

Section 4b: Diagnosis of AKI

4b.1 What was the date of diagnosis of AKI? D D / M M / Y Y

4b.2 What was the suspected aetiology of the AKI?

Haemorrhage ☐
High blood pressure / pre-eclampisa / HELLP ☐
Infection ☐
Urinary Obstruction ☐
Medication ☐
Atypical Haemolytic Uremic Syndrome (aHUS) ☐
Thrombocytopenic thrombotic purpura (TTP) ☐
Hyperemesis ☐
Other ☐

If Other, please give details _____

Not known ☐

Section 4c: Management of AKI

4c.1 Did the woman ever become anuric (<50ml/24 hrs)? **Yes** ☐ **No** ☐

If Yes, date first anuric D D / M M / Y Y

4c.2 Did the woman ever become oliguric (< 0.5ml/kg/hour for six hours)? Yes ☐ No ☐

If Yes, date first oliguric D D / M M / Y Y

4c.3 Was the woman started on any new medication after AKI diagnosis? Yes ☐ No ☐

If Yes, please specify _____

4c.4 Was any medication stopped after AKI diagnosis? Yes ☐ No ☐

If Yes, please specify _____

4c.5 Who was the woman seen by during the index AKI admission? *(tick all that apply)*

- Midwife ☐
- Obstetrician ☐
- Nephrologist ☐
- Medical Team ☐
- Anaesthetist ☐
- ITU ☐
- Critical Care Outreach ☐

4c.6 Did the woman have a fetal scan within one week prior to AKI episode? Yes ☐ No ☐

If Yes, were any concerns about fetal wellbeing detected? Yes ☐ No ☐

If Yes, please specify _____

4c.7 Did the woman receive any of the following treatment for current AKI?

	Tick if yes	Start date	End date	Tick if ongoing
Haemofiltration (usually on intensive care)	☐	D D / M M / Y Y	D D / M M / Y Y	☐
Haemodialysis (usually on a renal ward or unit)	☐	D D / M M / Y Y	D D / M M / Y Y	☐
Peritoneal dialysis (usually on a renal ward or unit)	☐	D D / M M / Y Y	D D / M M / Y Y	☐

4c.8 Did the woman receive any of the following treatment for TMA?

	Tick if yes	Start date	End date	Tick if ongoing
Plasma exchange or plasmapheresis	☐	D D / M M / Y Y	D D / M M / Y Y	☐
Fresh frozen plasma infusion	☐	D D / M M / Y Y	D D / M M / Y Y	☐

Section 5: Delivery

5.1 Did this woman have a miscarriage? Yes ☐ No ☐

If Yes, please specify date D D / M M / Y Y

5.2 Did this woman have a termination of pregnancy? Yes ☐ No ☐

If Yes, please specify date D D / M M / Y Y

If Yes to 5.1 or 5.2, please go straight to section 6.

5.3 Is this woman still undelivered? Yes ☐ No ☐

If Yes, will she be receiving the rest of her antenatal care from your hospital? Yes ☐ No ☐

If No, please indicate name of hospital providing future care

_____

Will she be delivered at your hospital? Yes ☐ No ☐

If No, please indicate name of delivery hospital, then *go to section 7*.

_____

5.4 Was delivery induced? Yes ☐ No ☐

If Yes, please state indication _____

Was vaginal prostaglandin used? Yes ☐ No ☐

5.5 Did the woman labour? Yes ☐ No ☐

If Yes, please state the date and time of diagnosis of labour D D / M M / Y Y h h : m m (24hr)

5.6 Did she have an epidural? Yes ☐ No ☐

5.7 Was birth expedited due to concerns about maternal wellbeing? Yes ☐ No ☐

If Yes, please state indication _____

5.8 Did the woman have a caesarean section? Yes ☐ No ☐

If Yes, please state:

Grade of urgency[5]* ☐

Indication for caesarean section _____

5.9 Was she treated for infection? Yes ☐ No ☐

If Yes, what was the presumed source? _____

5.10 Did the woman have a postpartum haemorrhage? Yes ☐ No ☐

If Yes, what was the estimated blood loss? ☐☐☐☐ mls

5.11 Was she transfused with packed red cells? Yes ☐ No ☐

If Yes, how many units? ☐☐

5.12 Was she transfused with platelets? Yes ☐ No ☐

If Yes, how many units? ☐☐

*For guidance please see back cover

Section 6: Outcomes

Section 6a: Woman

6a.1 Was the woman admitted to Level 2 or Level 3 critical care (HDU/ITU)? **Yes** ☐ **No** ☐

If Yes, please specify

Duration of stay ☐☐ days

Or Tick if woman is still in ITU/HDU ☐

Or Tick if woman was transferred to another hospital ☐

6a.2 Did any other major maternal morbidity occur?[6*] Yes ☐ No ☐

If Yes, please specify _____

6a.3 Did the woman die? Yes ☐ No ☐

If Yes, please specify date and time of death D D / M M / Y Y h h : m m (24hr)

What was the primary cause of death as stated on the death certificate?

(Please state if not known) _____

Was a post mortem examination undertaken? Yes ☐ No ☐

If Yes, did the examination confirm the certified cause of death?

Yes ☐ No ☐ Not known ☐

Was there evidence of TMA on the postmortem? Yes ☐ No ☐

If Yes, which organs? _____

Section 6b: Infant 1

NB: If more than one infant, for each additional infant, please photocopy the infant section of the form **(before filling it in)** and attach extra sheet(s) or download additional forms from the website: www.npeu.ox.ac.uk/ukoss

6b.1 Date and time of delivery D D / M M / Y Y h h : m m (24hr)

6b.2 Mode of delivery Spontaneous vaginal ☐ Ventouse ☐ Lift-out forceps ☐

Rotational forceps ☐ Breech ☐

Pre-labour caesarean section ☐

Caesarean section after onset of labour ☐

6b.3 Birthweight ☐☐☐☐ g

6b.4 Sex of infant: Male ☐ Female ☐ Indeterminate ☐

6b.5 Was the infant stillborn? Yes ☐ No ☐

If Yes, *please go to section 7.*

6b.6 5 min Apgar ☐☐

6b.7 Was the infant admitted to the neonatal unit? Yes ☐ No ☐

If Yes, please specify

Duration of stay ☐☐ days

Or Tick if still in SCBU/NICU ☐

*For guidance please see back cover

6b.8 Did any other major infant complications occur?[7]* Yes ☐ No ☐

If Yes, please specify _____

6b.9 Did the infant die? Yes ☐ No ☐

If Yes, please specify date of death D D / M M / Y Y

What was the primary cause of death as stated on the death certificate?

(Please state if not known) _____

Section 7:

Please use this space to enter any other information you feel may be important

Section 8:

Name of person completing the form _____

Designation _____

Today's date D D / M M / Y Y

You may find it useful in the case of queries to keep a copy of this form.

Form Continues on Next Page

TMA associated Pregnancy AKI: Incidence, Outcomes and Risk Factors

Data Collection Section for Specialist Team (Nephrologist and/or National Complement Therapeutics Centre)

Case Definition

Please report any pregnant women with:a rise in serum creatinine to >250 µmol/l

AND a platelet count <150x10^9 L

EXCLUDE

Women established on renal replacement therapy (dialysis) prior to the acute AKI episode

Section 9: Specialist test results and treatment

9a.1 Please record if the following were performed and result with date if available

	Tick if yes	Result	Units	Date
ADAMTS 13	☐			D D / M M / Y Y
Coombs test	☐			D D / M M / Y Y
Fragments on peripheral blood film	☐	Yes ☐ No ☐	N/A	N/A
Complement factor genotyping	☐			D D / M M / Y Y
CH100	☐			D D / M M / Y Y
AH100	☐			D D / M M / Y Y
Factor H	☐			D D / M M / Y Y
Factor I	☐			D D / M M / Y Y
Factor B	☐			D D / M M / Y Y
sC5b-9	☐			D D / M M / Y Y
Factor H autoantibodies	☐			D D / M M / Y Y
Renal biopsy *(please give report details)*	☐			D D / M M / Y Y
Fibrinogen	☐			D D / M M / Y Y
Prothrombin Time	☐			D D / M M / Y Y
D-Dimer	☐			D D / M M / Y Y

9a.2 Has the woman's care been discussed with the National Renal Complement Therapeutics Centre Yes ☐ No ☐

9a.3 Was treatment given to block the complement pathway? Yes ☐ No ☐

If Yes, please specify (e.g. eculizumab) _____

Section 10:

Please use this space to enter any other information you feel may be important

Section 11:

Name of person completing the form _____

Designation _____

Today's date D D / M M / Y Y

You may find it useful in the case of queries to keep a copy of this form.

Definitions

1. UK Census Coding for ethnic group

WHITE
- 01. British
- 02. Irish
- 03. Any other white background

MIXED
- 04. White and black Caribbean
- 05. White and black African
- 06. White and Asian
- 07. Any other mixed background

ASIAN OR ASIAN BRITISH
- 08. Indian
- 09. Pakistani
- 10. Bangladeshi
- 11. Any other Asian background

BLACK OR BLACK BRITISH
- 12. Caribbean
- 13. African
- 14. Any other black background

CHINESE OR OTHER ETHNIC GROUP
- 15. Chinese
- 16. Any other ethnic group

2. Previous or current pregnancy problems, including:

Thrombotic event
Amniotic fluid embolism
Eclampsia
3 or more miscarriages
Preterm birth or mid trimester loss
Neonatal death
Stillbirth
Baby with a major congenital abnormality
Small for gestational age (SGA) infant
Large for gestational age (LGA) infant
Infant requiring intensive care
Puerperal psychosis
Placenta praevia
Gestational diabetes
Significant placental abruption
Post-partum haemorrhage requiring transfusion
Surgical procedure in pregnancy
Hyperemesis requiring admission
Dehydration requiring admission
Ovarian hyperstimulation syndrome
Severe infection e.g. pyelonephritis

3. Previous or pre-existing maternal medical problems, including:

Cardiac disease (congenital or acquired)
Renal disease
Endocrine disorders e.g. hypo or hyperthyroidism
Psychiatric disorders
Haematological disorders e.g. sickle cell disease, diagnosed thrombophilia
Inflammatory disorders e.g. inflammatory bowel disease
Autoimmune diseases
Cancer
HIV

4. Estimated date of delivery (EDD):

Use the best estimate (ultrasound scan or date of last menstrual period) based on a 40 week gestation

5. RCA/RCOG/CEMACH/CNST Classification for urgency of caesarean section:

1. Immediate threat to life of woman or fetus
2. Maternal or fetal compromise which is not immediately life-threatening
3. Needing early delivery but no maternal or fetal compromise
4. At a time to suit the woman and maternity team

6. Major maternal medical complications, including:

Persistent vegetative state
Cardiac arrest
Cerebrovascular accident
Adult respiratory distress syndrome
Disseminated intravascular coagulopathy
HELLP
Pulmonary oedema
Secondary infection e.g.pneumonia
Renal failure
Thrombotic event
Septicaemia
Required ventilation

7. Fetal/infant complications, including:

Respiratory distress syndrome
Intraventricular haemorrhage
Necrotising enterocolitis
Neonatal encephalopathy
Chronic lung disease
Severe jaundice requiring phototherapy
Major congenital anomaly
Severe infection e.g. septicaemia, meningitis
Exchange transfusion