IMPERIAL


# Expecting the unexpected: planning, pregnancy and CKD

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Imperial College London

20th May 2026

# DISCLOSURES

Academic Talks and Advisory Boards for:

ARGENX

ASTRA ZENECA

BOEHRINGER INGELHEIM

GLAXO SMITH KLINE

KEZAR

NKARTA

NOVARTIS

OTSUKA

PFIZER

ROCHE

SOBI

VERATX

# The landscape has changed

- **Then -** “Children of women with renal disease used to be born dangerously or not at all (not at all if their doctors had their way)” (The Lancet, 1975)

- **Now** – Children of women with kidney disease can be born safely and we encourage them to plan in advance!

# CHALLENGE #1: PREGNANCY – PLANNING IS EVERYTHING

Most patients with lupus nephritis and many with CKD are women in their reproductive years

Consider their wishes for pregnancy from the very start of their kidney journey

"you will have your baby, but not yet"….

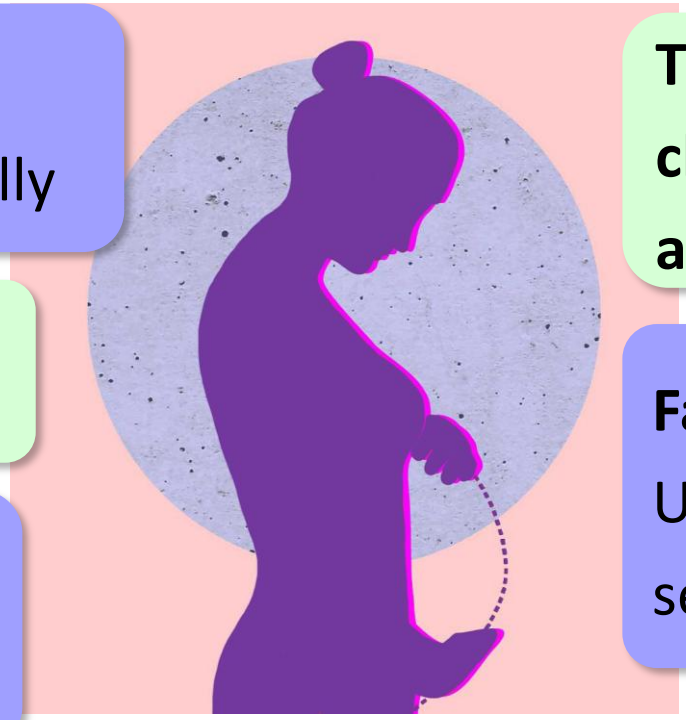
Key themes from a systematic review of 15 qualitative studies:

**Pursuing motherhood**

Important personally and culturally

**Devastating loss about being denied motherhood**

**Anger at health professionals for dictating decision making**



**Traumatised by their clinician warning them against pregnancy**

**Failure and blame**

Unable to conceive = diminished self-worth

Tong A et al Nephrol Dial Transplant 2014

# Pregnancy is important to women with CKD

**Hello Liz**
**I just wanted to let you know my boy got engaged yesterday.**
**It's 25 years since you sprinkled the magic into my life.**
**He's turned out to be a very handsome gracious young man.**
**Love B x**

# The scenarios

- 1) The woman with bad function
- 2) New onset proteinuria in pregnancy
- 3) With or without hypertension

# Key points – the importance of pre pregnancy planning

- Control the underlying disease – ideally before pregnancy but with pregnancy safe medications if presenting during pregnancy
- Offer all women with CKD/GN pre pregnancy counselling
- Advise on timing, medications, risks
- Never forget to advise re contraception / assess fertility
- Risk for a bad outcome is largely determined by eGFR, degree of proteinuria and BP pre pregnancy.
- Know how to diagnose pre-eclampsia
- Follow up post partum

# Pregnancy planning should always include advice on contraception

| Risk | Risk attenuation |
|---|---|
| **Unplanned pregnancy** | Individual evaluation and counselling for contraception type (preference, thrombosis risk, age) |
| | **Highly Effective contraception:** |
| | Combined oral contraceptive: not in those with increased risk of thrombosis |
| | Progesterone only contraceptive<br>Long acting reversible contraception (LARC) – progesterone depot / implant / intrauterine coil |

Recommend barrier methods only if more effective methods contraindicated.
Recommend emergency (post coital) contraception when necessary

# Our patient G proceeded through all 3 scenarios!

- 2012 – age 33, came for pre pre
- ESKD secondary to **lupus nep**
- Multiple miscarriages (**8**)
- **Renal transplant 13.11.20(**
- Creatinine approximately 1
- Significant proteinuria
- On Tacrolimus, azathioprine a

**What we will have covered:**

Lupus poses challenges for pregnancy – was it quiescent?

Transplant – good function, but worrying proteinuria

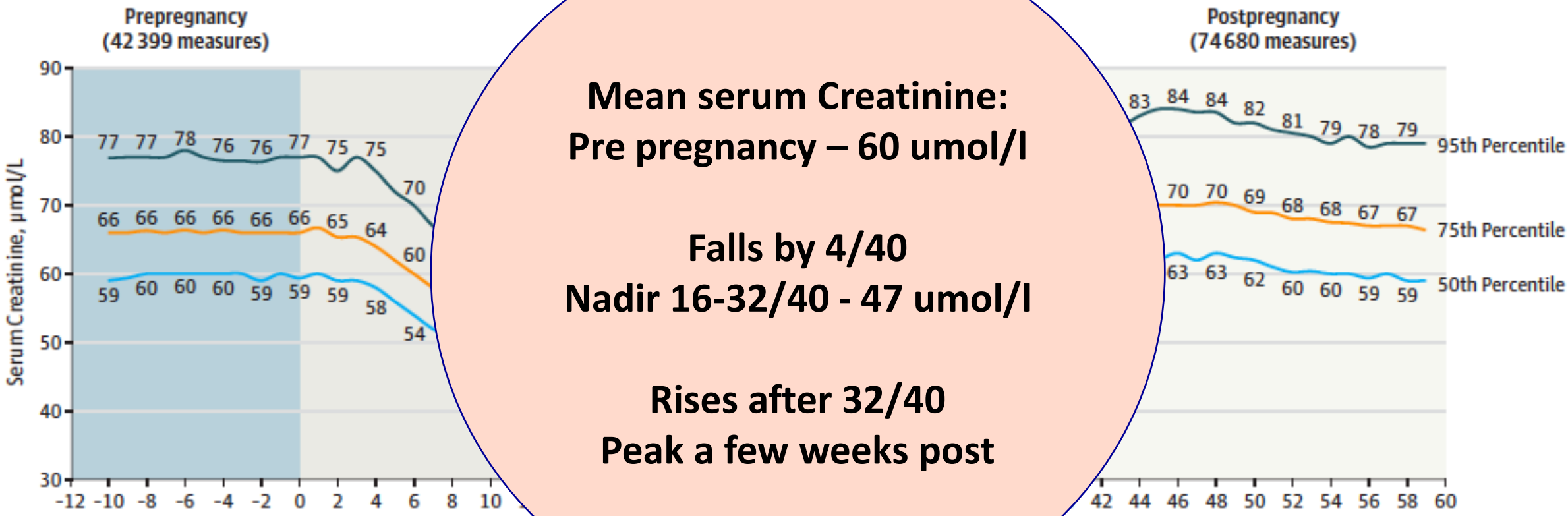
But many women can have safe successful pregnancies;

**Be wary** – active disease, wrong meds, LAC+,

non white, CKD; ? Develop DSA

Control disease, BP, **collaborative care**

# Know what is normal for renal function in pregnancy




**Mean serum Creatinine:**
**Pre pregnancy – 60 umol/l**

**Falls by 4/40**
**Nadir 16-32/40 - 47 umol/l**

**Rises after 32/40**
**Peak a few weeks post**



Harel et al JAMA 2019

# Back in 2012 – my concerns were mostly focused on whether she had active lupus nephritis given her unexplained proteinuria

- Biopsy showed recurrent lupus nephritis!
- Treat with MMF and advised to wait at least a year before switching back to azathioprine

**Practice Point 10.3.2.1:**
Patients with active LN should be counselled to avoid pregnancy while the disease is active or when treatment with potentially teratogenic drugs is ongoing, and for ‡6 months after LN becomes inactive.

KDIGO 2024 LN Guideline. Kidney Int Suppl. 2024, 105:S1-S69
Buyon J et al CJASN 2017
Clowse M et al Am J Obstet Gynaecol 2008
Moroni G et al J Autoimmun 2016 2 papers
Gamba A et al J of Clin Med 2024

# Medications and pregnancy

**Practice Point 10.3.2.2**: To reduce the risk of pregnancy complications, hydroxychloroquine should be continued during pregnancy, and low-dose aspirin should be started before 16 weeks of gestation.

**Practice Point 10.3.2.3:** Glucocorticoids, hydroxychloroquine, azathioprine, tacrolimus, and cyclosporine are considered safe immunosuppressive treatments during pregnancy.

| SUPPORTING EVIDENCE | Reference |
|---|---|
| Hydroxychloroquine use in lupus patients during pregnancy is associated with longer pregnancy duration in preterm births | Kroese SJ, et al. J Immunol Res. 2017 |
| Antiplatelet therapy before or after 16 weeks' gestation for preventing preeclampsia: an individual participant data meta-analysis. | Meher S, Duley L, Hunter K, Askie L. Am J Obstet Gynecol. 2017 |
| Low-dose aspirin for preventing preeclampsia and its complications: a meta-analysis. | Xu TT, et al. J Clin Hypertens (Greenwich). 2015 |
| British Society for Rheumatology guideline on prescribing drugs in pregnancy and breastfeeding: immunomodulatory anti-rheumatic drugs and corticosteroids | Russell MD, Dey M, Flint J, et al. Rheumatology (Oxford) 2023 |

# Ideal – optimise medications pre-pregnancy: what to stop[1–3]

**Stop ACEi / ARB** pre- or at first positive test

**Avoid blood transfusions – EPO and IV iron** fine

**Immunosuppressants:**

**Avoid teratogens** (MMF, CYP, methotrexate – stop at least 6 weeks before (but **NO NEED TO STOP for egg harvesting or IVF**)

- **CNIs, steroids, azathioprine** – all fine
- **CD20 depletion** – probably ok first trimester
- **Belimumab** – remains ?


1. Gholizadeh Ghozloujeh Z et al. *Front Nephrol* 2024
2. KDIGO 2024 LN Guideline. *Kidney Int* 2024;
3. Sammaritano LR et al. *Arthritis Rheumatol* 2020.

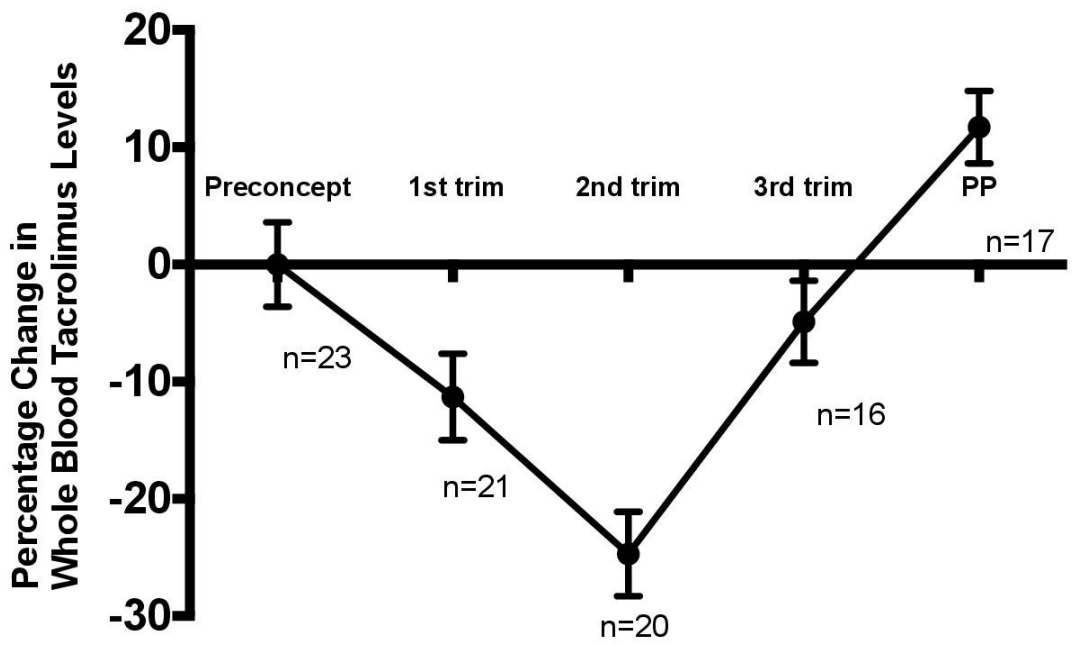
# Ideal – optimise medications pre-pregnancy: what to start[1–3]

- If has lupus, ensure **hydroxychloroquine**
- Low-dose **aspirin** to reduce risk of pre-eclampsia
- Optimise antihypertensives **labetalol, nifedipine, methyldopa** first line
- Continue or start **prednisolone / CNI / azathioprine**
  - Warn re. increased risk of GDM (particularly with combination of steroid and tacrolimus)
  - Biologics useable during pregnancy in exceptional circumstances


1. Gholizadeh Ghozloujeh Z et al. *Front Nephrol* 2024
2. KDIGO 2024 LN Guideline. *Kidney Int* 2024
3. Sammaritano LR et al. *Arthritis Rheumatol* 2020
4. Gamba A et al. *J Clin Med* 2024; 13: 3454.

# Tacrolimus in pregnancy

- Standard measurement is whole blood level which falls with lower albumin and lower RBC count
- BUT unbound tacrolimus remains stable
- Risk of tac toxicity




Mohammadi, Gulyani, McDonald, Jesudason Clin Transplant 2017

**Tacrolimus levels:**

**N RBC & sAlbumin**
Whole Blood: 10
Plasma: 3
Unbound: 1

**Low RBC & sAlbumin**
Whole Blood: 6
Plasma: 2
Unbound: 1

Shilpa Jesudasen personal communication

# Immunosuppressive treatment options for LN in pregnancy

## Induction therapy

Start urgent therapy as an alternative to therapeutic termination of pregnancy up to 16–20 GW

Priority is not LN remission, but containment to allow pregnancy continuation (fetal growth/maturation) as far as possible

**HCQ**
**CS ± MP** + mandatory IS →

First: **AZA** (1.5–2 mg/kg per day)

Second: **CNI** (Not voclosporin)
**CSA** (trough level 70–100 mg/L)
**TAC** (trough level 5–7 mg/L)

Third: **anti-CD20** (if no more appropriate alternative; 1st trimester)

## Maintenance therapy

Continue maintenance IS

Do not reinitiate maintenance IS in case of lasting remission without IS

**HCQ CS AZA CNI**

Maintain close post partum follow up even if did not flare in pregnancy



Figure reused from Fakhouri F et al. *Kidney Int* 2023
KDIGO 2024 LN Guideline. Kidney Int Suppl. 2024

# So how did G do after 2012 advice and lupus nephritis in transplant?

**Didn't return for more pre- pregnancy advice**

**Got pregnant (on MMF, switched)**

**Delivered: 12 04 2013** [Baby O]

- Pregnancy complicated by osteoporosis of pregnancy (non weight bearing from 12/40, improved post)
- HTN / deterioration in graft function 3rd trimester - IOL 36+6/40
- Manual removal of placenta with significant blood loss
- IUGR – 2.38kg at 37/40; ventouse delivery
- 8 day admission

# Germin: Fast forward to July 2017

Post her first pregn… creatinine rose

- **Repe… …: subendothelial cha…**
  - …ack to 2008
- …inine
- …s (cu…
  - …tive –
  - …
- **Oct 20… …TA (40%) and cABM**
- DSA positive: HLA-B57, B58 MFI>1000
- **May 2017**: Cone biopsy **Moderate to severe dysplasia (CIN 2-3)**

**Presents aged 39 in July 2017: 13/40 pregnant with creatinine of 188umol, significant proteinuria**

**Creat: 188umol/l (pre preg 199 with eGFR 24mls/min, CKD4) Urea 15.8 uPCR 326**

**Hb 88g/l**

**LAC and ENA negative (phew!)**

# Multiple red flags!

1. NO pre-pregnancy counselling (well actually loads saying DON’T)
2. Severe hypertension – at outset of pregnancy was on 3 agents including irebesartan and enalapril.
3. Progressive CKD 4 with nephrotic range proteinuria
4. 12 years post transplant
5. IUGR first baby, multiple miscarriages.

# Common to see pregnant women with advanced CKD 3-5

Key questions from patients:

- Will my disease harm my baby?
- Will the pregnancy make my kidneys worse?
- What can you do to make it safer?

# What they almost never ask

- Will I live to see my baby grow up?
- Will I die?

Globally:

- Is there provision for a premature baby?
- Will dialysis be available if my renal function fails?

# My advice at 13/40 – part 1 (2017)

- VERY high risk pregnancy
  - might need dialysis in pregnancy (urea already 15.8umol/l; ≥17 not safe for the baby; very likely to bring dialysis nearer.
  - High risk of pre eclampsia - age, significantly worse kidney function, and hypertensive
  - I said unlikely to get beyond 32/40 - Omar had IUGR despite much better function;
  - “this is likely to be a premature growth restricted baby”

**G was truly shocked when I mentioned prematurity!**

Critical to control BP and will need to monitor at home

Already has significant proteinuria so diagnosing preeclampsia will be challenging.

# CKD outcomes data (paper of 2021 NASOM 2022!)

**Retrospective (+ prospective) cohort study:**

- GSTT, KCH, Imperial, Leicester, Nottingham, Royal London
- Conception between Jan 2003 and June 2017

- 178 pregnancies (20/40 or more) in 159 women - CKD-EPI
  - 79 (47%) CKD 3a
  - 64 (38%) CKD 3b
  - 25 (15%) CKD 4 and CKD 5 (pre dialysis)

- Median pre-pregnancy creatinine 140mmol/l (range 104-457mmol/l; IQR 123-167)
- 79% had chronic hypertension
- 43 (24%) women had functioning renal Txp (incl 2 with SPK)



Wiles K and Webster P et al NDT 2020

# Obstetric outcomes – live birth rate 98% BUT:

56% pre-term (<37/40); 26% <34/40; 35% needed NICU

**Risk factors for adverse pregnancy outcomes:**

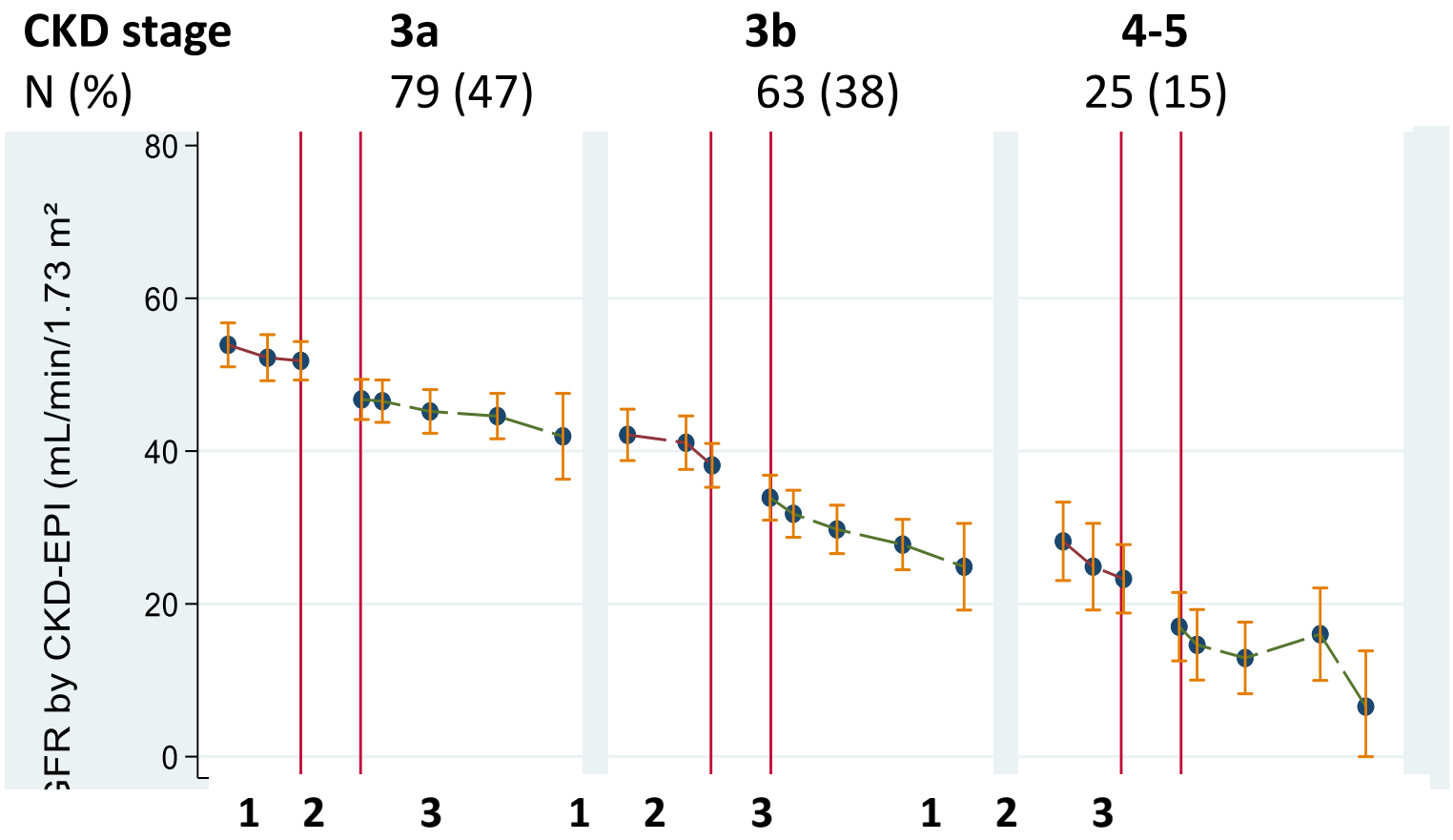
- **for delivery <34/40**
  - chronic hypertension (CHT) 20% (OR 16.5)
  - CHT and <10% gestational fall in creatinine 40%

- **for birthweight <10$^{th}$ centile**
  - uPCR >100mg/mmol prior to pregnancy or before 20/40;
  - OR 2.57; CI: 1.20-5.53, p=0.016)

- Rather than CKD stage

Wiles K and Webster P et al NDT 2020

# More rapid progression of renal impairment in those with worse function at baseline – on average lose 2.5yrs of kidney function




**Predictors of decline in eGFR:**

- Chronic hypertension
- Urinary PCR of >100mg/mmol
- **Gestational fall serum creatinine of <10%**

**Years of pre-preg renal disease equivalent eGFR loss during preg**

- **CKD 3a** **1.7 (0.0-5.5)**
- **CKD 3b** **2.1 (0.0-4.9)**
- **CKD 4-5** **4.9**



Wiles K and Webster P et al NDT 2020

# My advice at 13/40 – part 2

**Anaemic** - Hb 88, falling rapidly. Ferritin 73

**Very low vitamin D** (22.9); on 1 alpha calcidol. PTH awaited.

**Urea** fell to 12.8, **creatinine stably awful** at 185

**NEEDS:**

IV iron asap and will need epo - probably start at same time. Start on 2000 weekly

colecalciferol 20,000 units weekly.

**Meds**

Prednisolon

Tacroli

Nife

La

M

Fo

Rant

Aspirin

Alfacalcidol

Clexane 20mg od sc

**Due to go to Egypt for 3 weeks on 11th August.**
**"I think this is a very bad plan".**

**A risk too far**

# 22/40 – many concerns (ours more than G's!)

- Tired
- **O/E: BP 180/110 x2** (has been similar in past, but booking BP 135/85)
- No peripheral oedema;  Recent uPCR 768 (Alb 25)

**Frank discussion:**

- We are v concerned over kidney function; Known cAbMR and scarring in kidney
- Immunosuppression had to be reduced pre-pregnancy due to CIN on cone biopsy
- Pregnancy makes assessing tacrolimus levels difficult
- Very high risk that Cr will deteriorate & will need dialysis pre- or post-delivery & lose transplant
- Very high risk of IUGR / pre-term birth / PET
- Must attend both transplant AND obs renal clinics in order to try and predict / preempt complications;

## Plan:

- Needs urgent treatment of BP today - likely to need at least short admission
- Booked for both obs-renal and renal transplant clinics next week
- Will need ongoing counselling as above

**Cervical cerclage August 2017**

# New onset proteinuria in early pregnancy – is it GN, should we biopsy?

- Screening tests  - always check immunology and virology:

- ANA, ANCA, dsDNA, complement, immunoglobulins (and PEP/FLC if any suspicions), APLA2R, (antiGBM)
- Hep B (core antibody) and HepC

- If all negative, normal function, normal BP and non nephrotic proteinuria, generally just monitor but plan to see post partum

# Risks of biopsy in pregnancy:

DOI: 10.1111/1471-0528.12111
www.bjog.org
Systematic review

## Kidney biopsy in pregnancy: evidence for counselling? A systematic narrative review

GB Piccoli,[a] G Daidola,[a] R Attini,[b] S Parisi,[b] F Fassio,[b] C Naretto,[c] MC Deagostini,[a] N Castelluccia,[a] M Ferraresi,[a] D Roccatello,[c] T Todros[b]

**197 kidney biopsies** performed during gestation (cc

**Major complications - 4 cases (2%) – NONE < 21 weeks**

Major bleeding-large perirenal haematomas requiring blood transfusion.

**Minor complications 5%,** timing??

Smaller haematomas

Macrohaematuria of several hours

Severe loin pain

**Postpartum** (269 biopsies)

No severe adverse events

**1%** minor events

**Non pregnant** < 0.1% severe complications

**Advice – only do a biopsy if will facilitate diagnosis of glomerular disease in pregnancy, where histological diagnosis will alter management**

Wiles K and Lightstone Kidney Int Rep 2018; 3:258-70

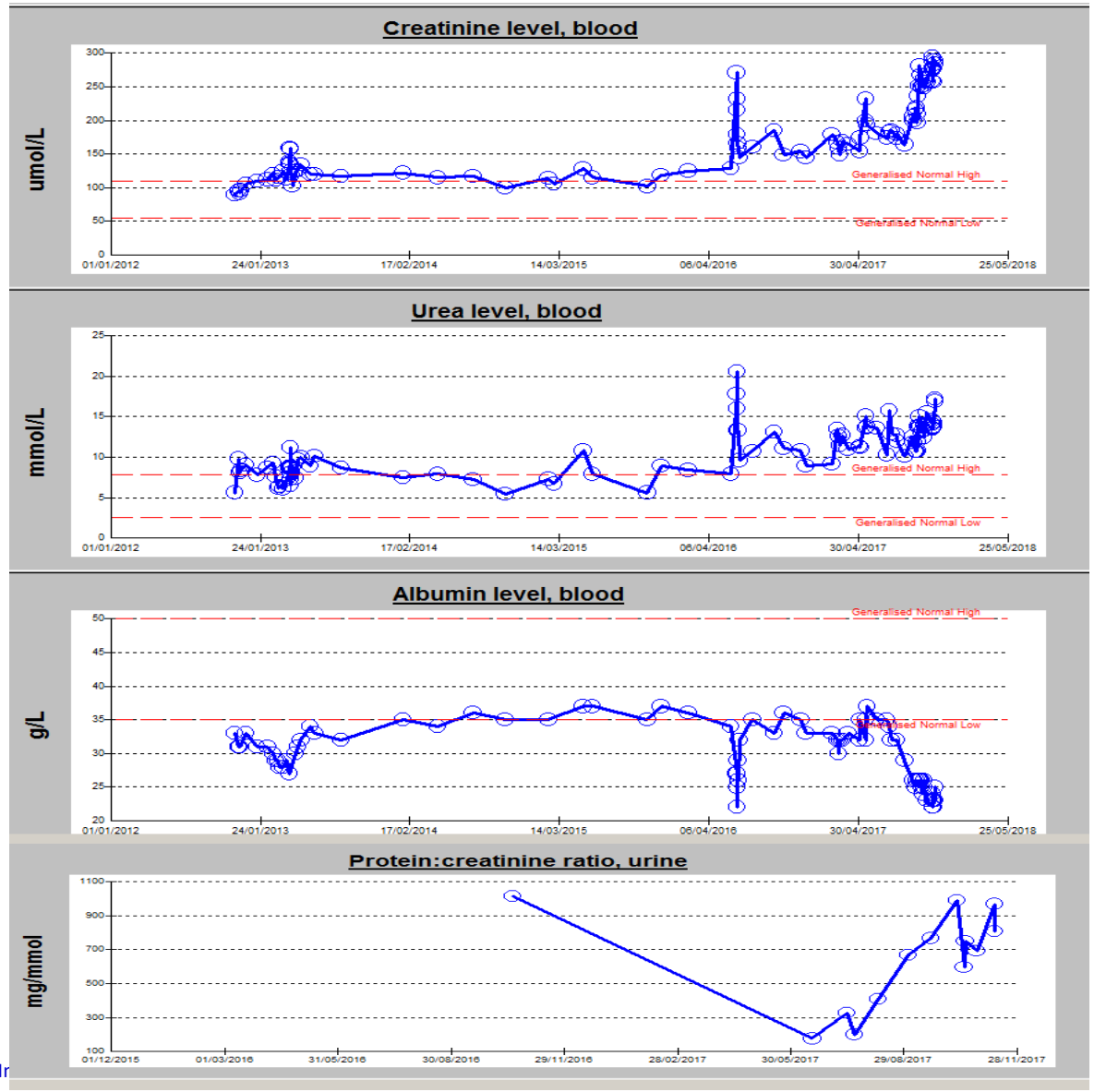
# Difficult decision #1:

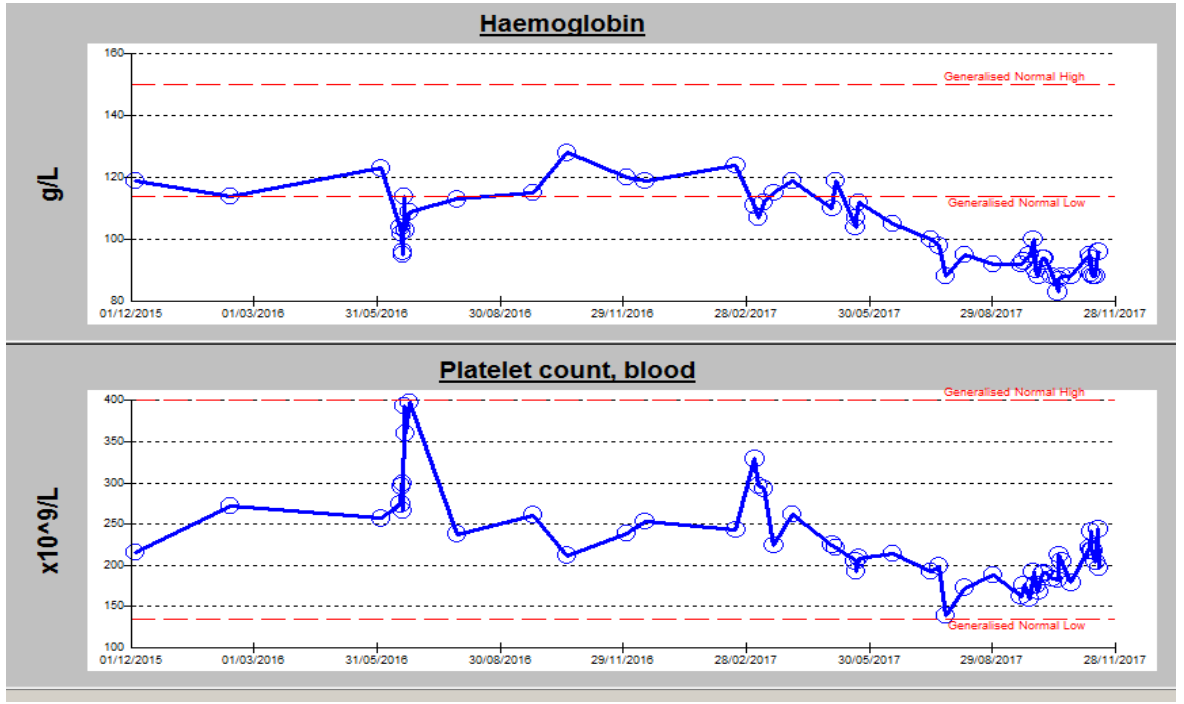
- Should she terminate?

# Discussed the possibility of termination

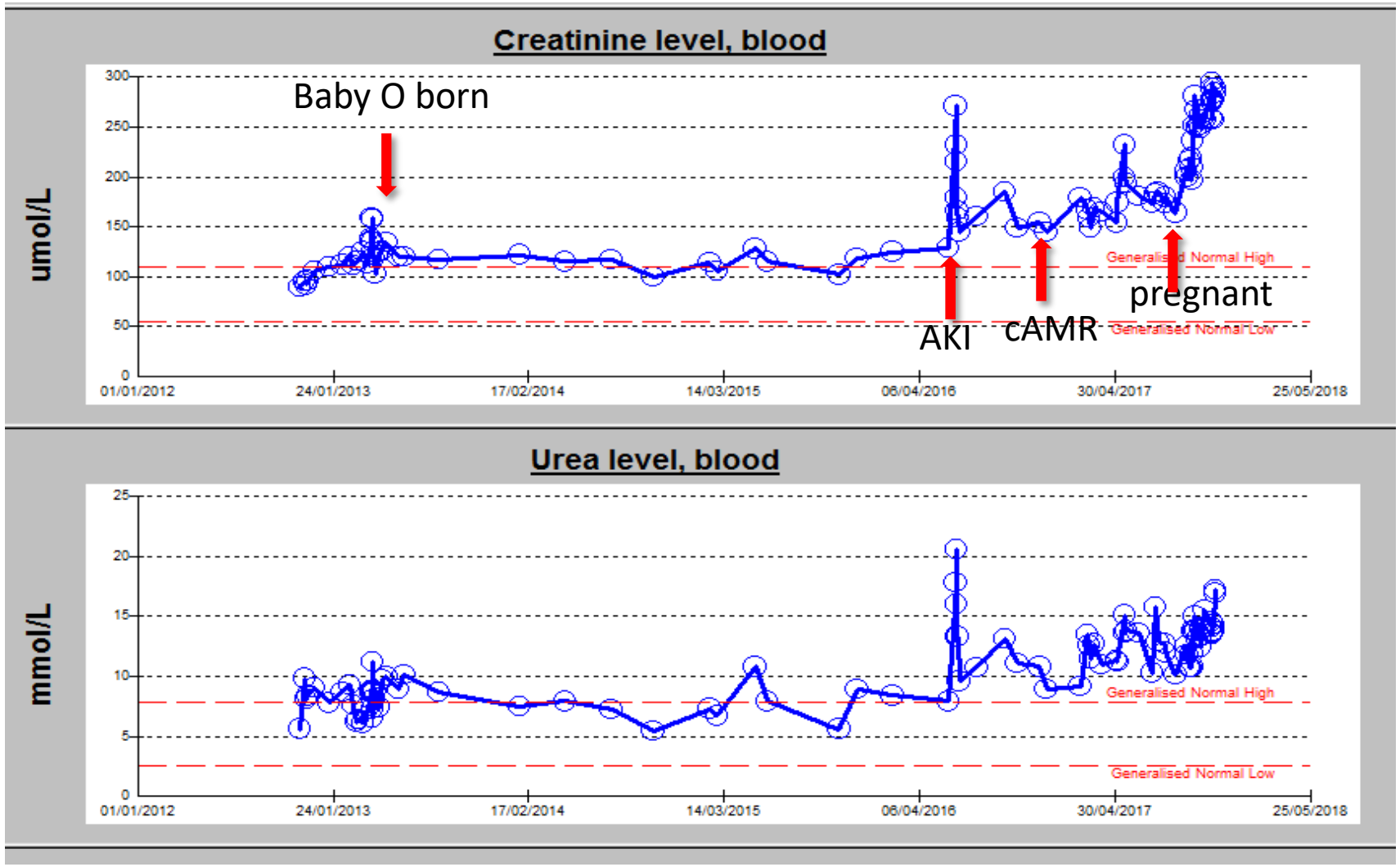
- She declined

# Adverse trends in blood /urine through pregnancy



# Multiple hits to her transplant function



# Recurrent admissions

- 22+5 – severe hypertension

- 23+5 – severe SOB, “She was worried about risk of pre-eclampsia and people telling her the baby isn't going to get enough oxygen.” – in fact was likely a panic attack

- 29+3 – worse SOB, concerns re pulmonary hypertension, preeclampsia, cardiac but likely fluid overload, anaemia and ESKF

# To deliver or dialyse?

- If the fetus is fine and the urea is rising, consider starting dialysis in pregnancy
- If already on dialysis – optimize pre pregnancy dialysis
- And increase dialysis presc pregnant

## Pregnancy in Patients Receiving Home Dialysis

Ghada Ankawi,[1] Nishanta Tangirala,[2] Shilpanjali Jesudason,[3] and Michelle A. Hladunewich[4]



**Abstract**

Pregnancy is an important goal for many women with CKD or kidney failure, but important barriers exist, particularly as CKD stage progresses. Women with advanced CKD often have a limited fertility window and may miss their opportunity for a pregnancy if advised to defer until after kidney transplantation. Pregnancy rates in women with advanced kidney failure or receiving dialysis remain low, and despite the improved outcomes in recent years, these pregnancies remain high risk for both mother and baby with high rates of preterm birth due to both maternal and fetal complications. However, with increased experience and advances in models of care, this paradigm may be changing. Intensive hemodialysis regimens have been shown to improve both fertility and live birth rates. Increasing dialysis intensity and individualizing dialysis prescription to residual renal function, to achieve highly efficient clearances, has resulted in improved live birth rates, longer gestations, and higher birth weights. Intensive hemodialysis regimens, particularly nocturnal and home-based dialysis, are therefore a potential option for women with kidney failure desiring pregnancy. Global initiatives for the promotion and uptake of home-based dialysis are gaining momentum and may have advantages in this unique patient population. In this article, we review the epidemiology and outcomes of pregnancy in hemodialysis and peritoneal dialysis recipients. We discuss the role home-based therapies may play in helping women achieve more successful pregnancies and outline the principles and practicalities of management of dialysis in pregnancy with a focus on delivery of home modalities. The experience and perspectives of a patient are also shared.

*CJASN* ■: 1–9, 2024. doi: https://doi.org/10.2215/CJN.0000000000000437

## Pregnancy in Women Receiving Maintenance Dialysis

*Cristina Popa,* Priyadarshini John,* Prasoon Verma, Sehrish Ali, and Silvi Shah*

Women with kidney failure experience pathophysiological changes that frequently result in disruption of the hypothalamic-pituitary-ovarian axis. Because of these hormonal disturbances, women with kidney disease often experience oligomenorrhea, amenorrhea, sexual dysfunction, and infertility. Preconception counseling, partnered with the early identification and optimal management of risk factors, such as hypertension and discontinuation of teratogenic medications, should be pursued for females contemplating conception. Pregnancy in women receiving maintenance dialysis is associated with a high risk of adverse maternal and fetal outcomes and should be managed by a multidisciplinary team of providers. In this review article, we discuss pregnancy incidence, pregnancy outcomes, and management of pregnancy among women receiving maintenance dialysis.



*Complete author and article information provided before references.*

*Correspondence to S. Shah (shah2sv@ucmail.uc.edu)*

**CP and PJ Contributed equally to this work.*

*Kidney Med. XX(XX):100950. Published online month xx, xxxx.*

*doi: 10.1016/*

# 29+5 – difficult decision #2

- Urea rising
- Symptomatic ESKF
- Offered dialysis or delivery.

- Baby growing well.

**Chose dialysis**

- Tesio inserted.
- Started 3 x 2 hours / week,
- increased to 4 x 2 hrs
- then 4 x 2.5 hours.

# So how did she do on HD?

- Rapidly improved symptomatically
- BP well controlled
- Anaemia improved
- SOB improved

- Baby grew

**Meds on HD:**

- Tacrolimus 7mg BD
- Nifedipine MR 40mg BD
- Aspirin 75mg OD
- Labetalol 400mg QDS
- Epo with each HD
- Clexane 20mg
- Cholecalciferol 2000 units weekly
- Ferrous sulphate 200mg BD

# $35^{+5}/40$

- Less well
- Increasingly hypertensive post HD
- Pre Dx urea 9-10

- **? Pre-eclampsia**

# ALWAYS assume new onset / acutely worsening proteinuria after 24/40 is due to (superimposed) pre eclampsia

Do the screening tests for GN flare / rejection if suspicious BUT Pre eclampsia must not be missed

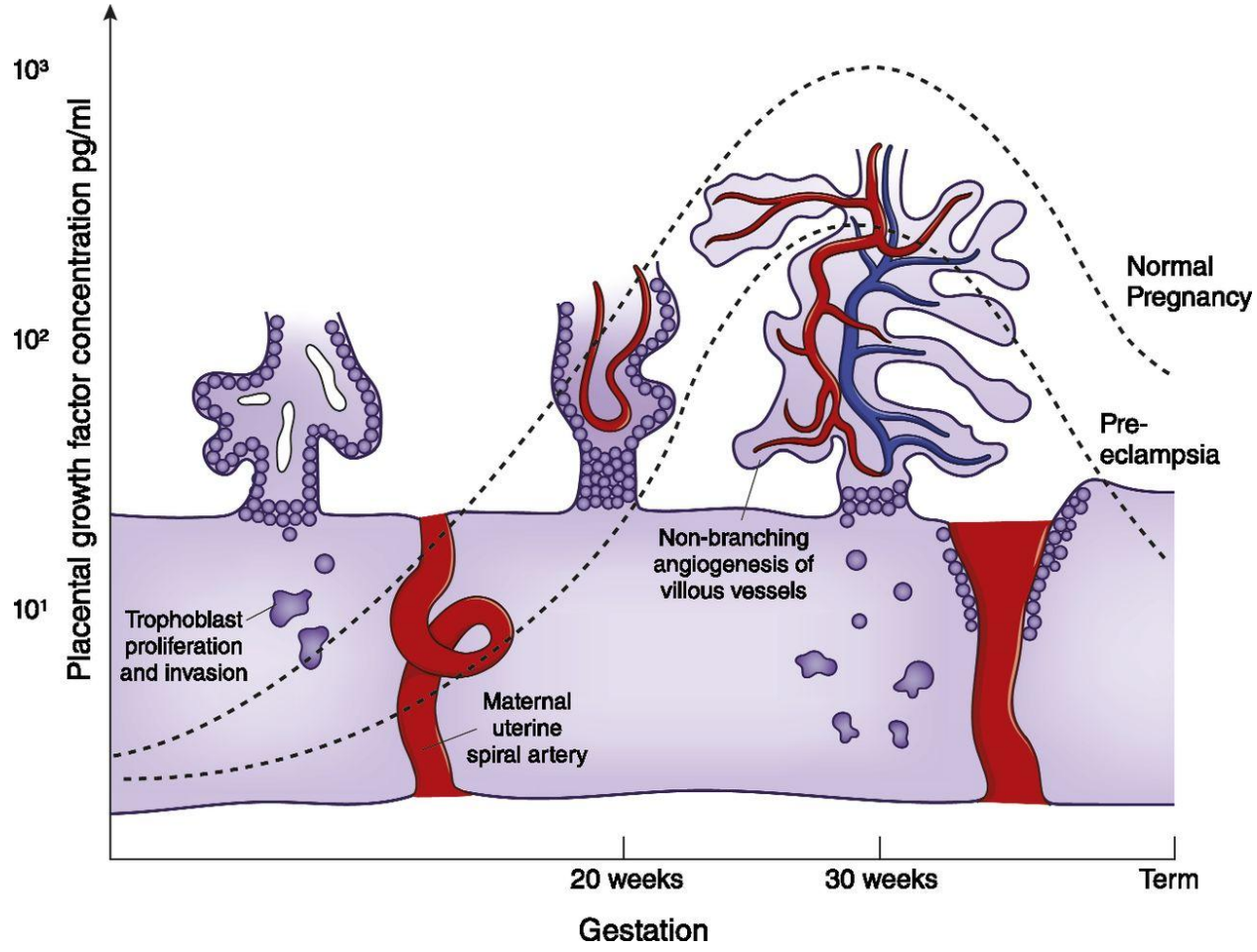
Angiogenic factors may assist diagnosis

Placental growth factor (PlGF) <5$^{th}$ Centile predicts delivery within 14 days

Bramham K et al 2016 Kidney Int 89:874-885

Our data suggests may not be as low in more advanced CKD – cut may have to be as high as 150 rather than 100pg/ml

Wiles K et al Pregnancy Hypertension 2021 23:58-64

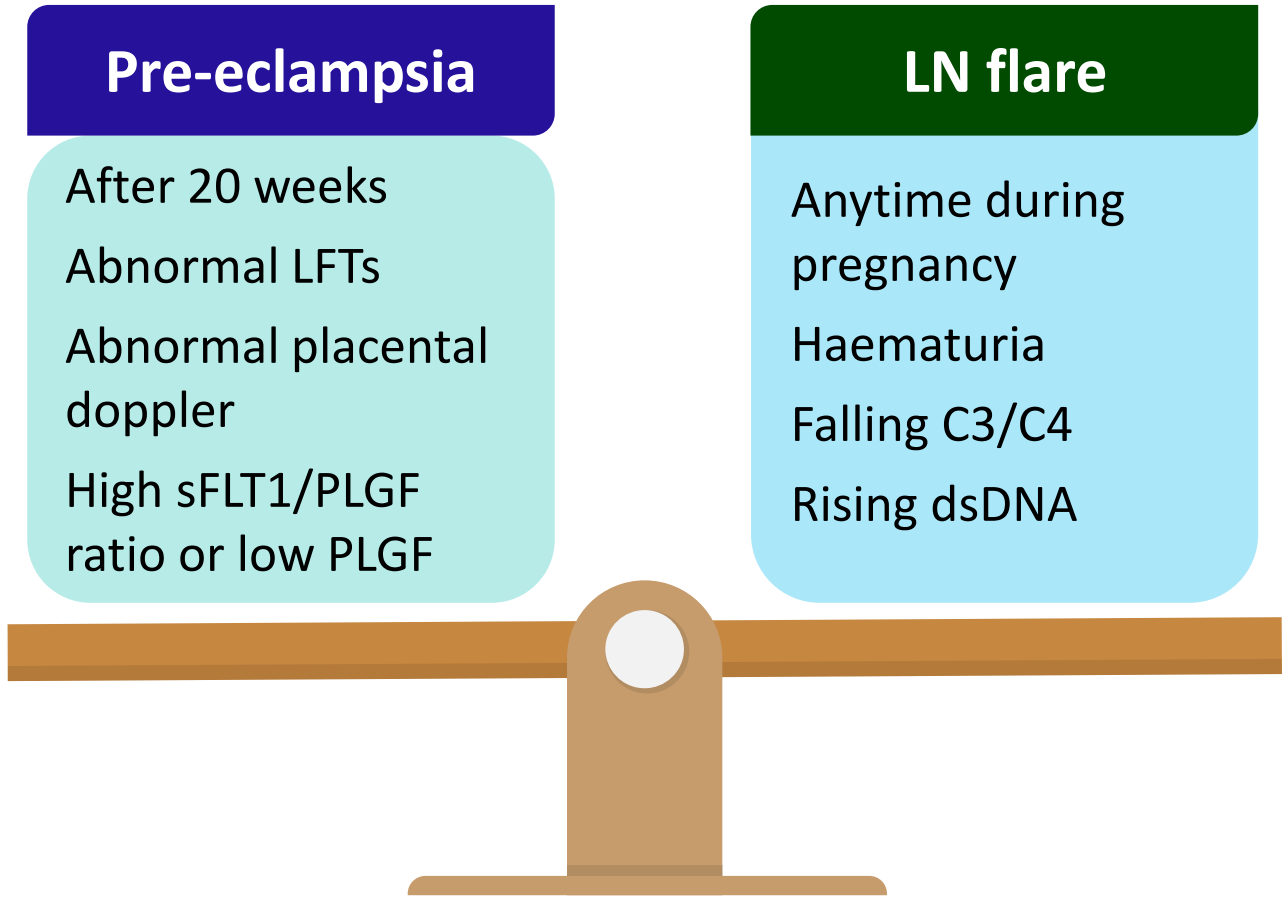



Wiles K et al. CJASN 2020; 15:1371-80

# Monitoring in pregnancy: beware of flares and/or pre-eclampsia[1–3]

- See at least monthly
- Look for symptoms and signs of flare if have LN or similar
- Follow kidney function, UPCR, serology, haematology et
- Pregnancy is an acute phase state – acute phase proteins rise
  - Beware the normal complement – look at trends

**Key issue: distinguishing LN flare from pre-eclampsia**




1.Gholizadeh Ghozloujeh Z et al. *Front Nephrol* 2024;
2. Andreoli L et al. *Ann Rheum Dis* 2017;
3. Wiles K et al. BMC Nephrol 2019

# When to deliver?

- ALWAYS a balance – maternal health vs safety of baby
- Is the mother's ill health pre eminent (the mother may disagree)?
- Is the baby struggling (they are remarkably robust)?
- Growth scans with dopplers
- What level of neonatal care available?
- If wait, and mother goes into renal failure, is dialysis available (global issue)?

# 1 day later 35+6

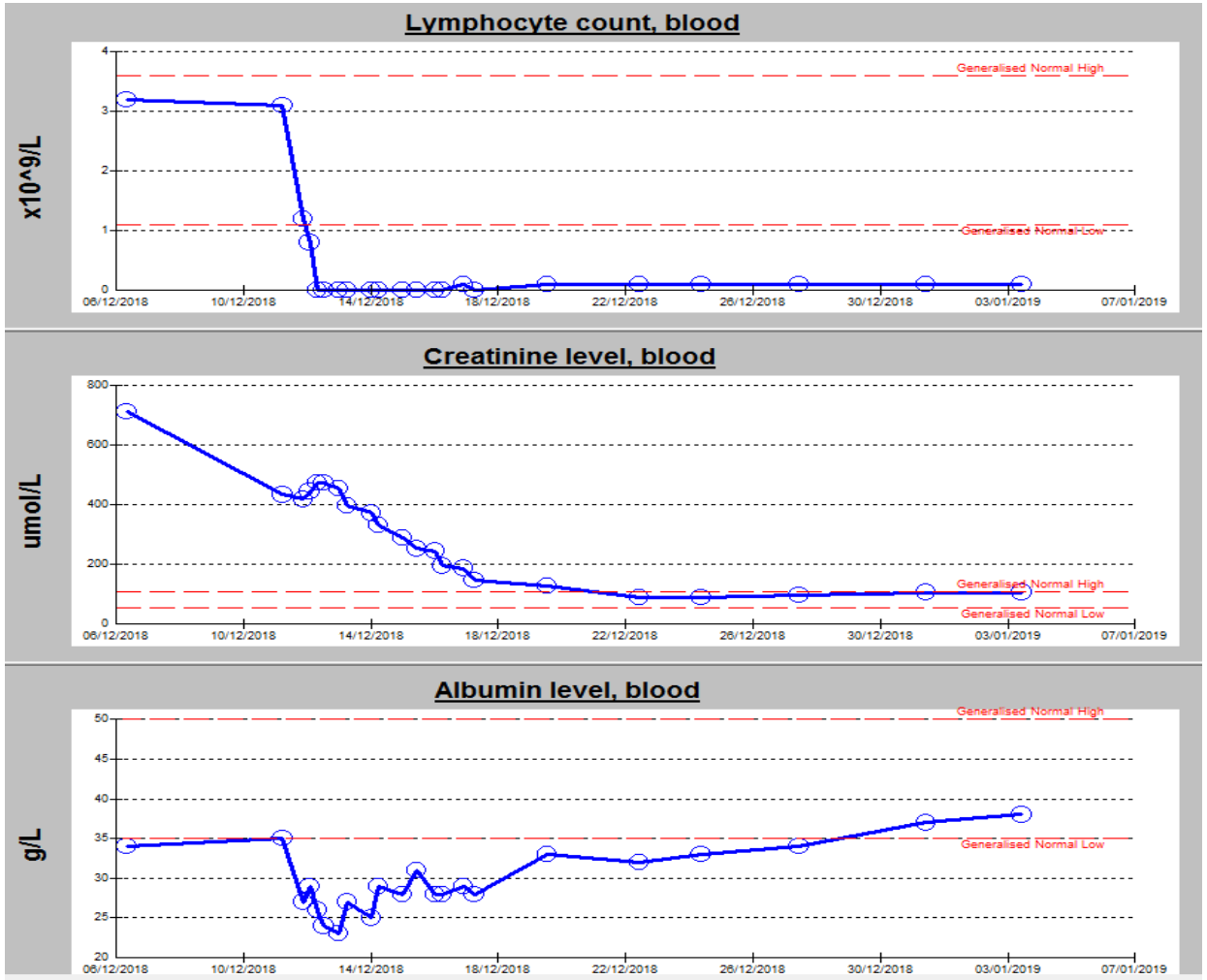
- Stitch removed
- Rapid labour (90 mins, wasn't happy!); forceps

**2.55kg baby girl**

- (her "big" brother was 2.38kg at 37/40)
- Initially floppy with no respiratory effort
- Fine after 5 mins. No need for SCBU
- Mum needed HD immediately post delivery

  as K+ high
- D3 – she wants to go home but BP still high
- D4 acutely rising CRP - ? Endometritis.IVAbx

# What a difference a year makes!




**11.12.2018 (just <1yr post delivery)**
**40 year old DBD transplant**
1.1.1 mismatch

Campath and tac (and maintenance prednisolone)

**Immediate function**
Discharged day 6

**3.1.2019 d23 post txp**
Creatinine 106
eGFR 57mls/min/1.73m2

Albumin 42
Hb 113

# After 8 miscarriages, 2 successful pregnancies despite all…

- No recent pre pregnancy counselling
- Terrible function
- Severe Hypertension
- Moderate proteinuria
- ESKF
- Required dialysis
- Got to 35+/40 – live baby not requiring speci
  care

**The KEY factor was that baby 2 grew despite everything**

# What did G teach me?

- Patient autonomy
- The desire to have a baby often supersedes the mother's concerns for herself
- Persistence can pay
- If the baby is growing well, consider dialysis to prolong the pregnancy
- Patients defy the odds…
- Immaculate collaborative care… Nephrologists / Obs Physicians / Obstetricians / Neonatologist

# 4 years on…

## CLINIC 10.2023

- **Various issues but well**
- Creatinine 119; eGFR 47ml/min
- Albumin 37
- Hb 117

**17.11.2023:**
*"Dear Dr Liz. It's so lovely to hear from you! I often think about you and how you are doing x you will always be a special person in me and my family's life and in my pregnancy journey"*

# When it goes well.. magic moments!

PLAN!

Aim for quiet disease if lupus etc

Immaculate BP control

Optimise medications PRE

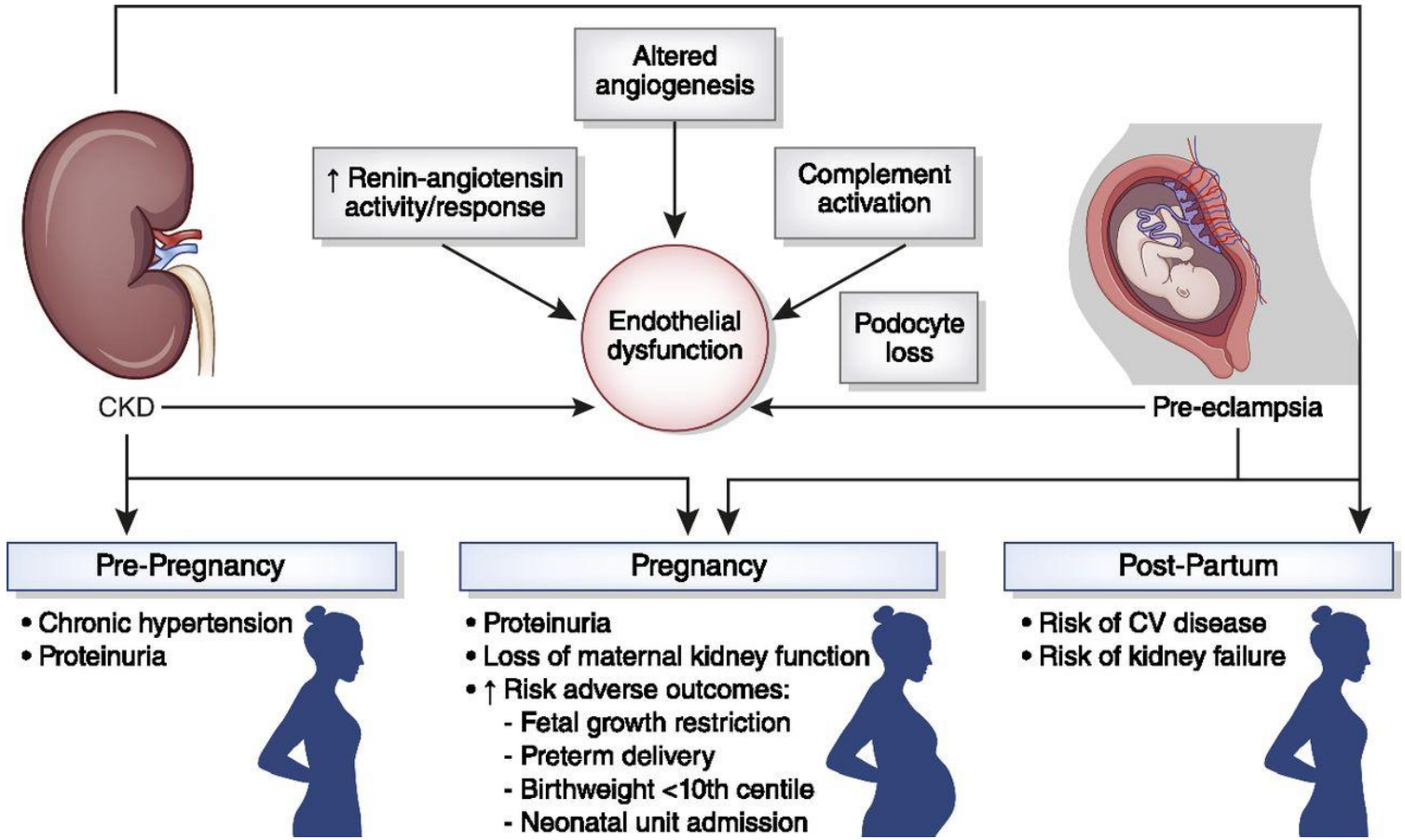
**Specialist collaborative care is the key**

# And then what? The 4th "trimester"

Long term risks to mother's health after:

- pre eclampsia
- GDM
- Sensitisation

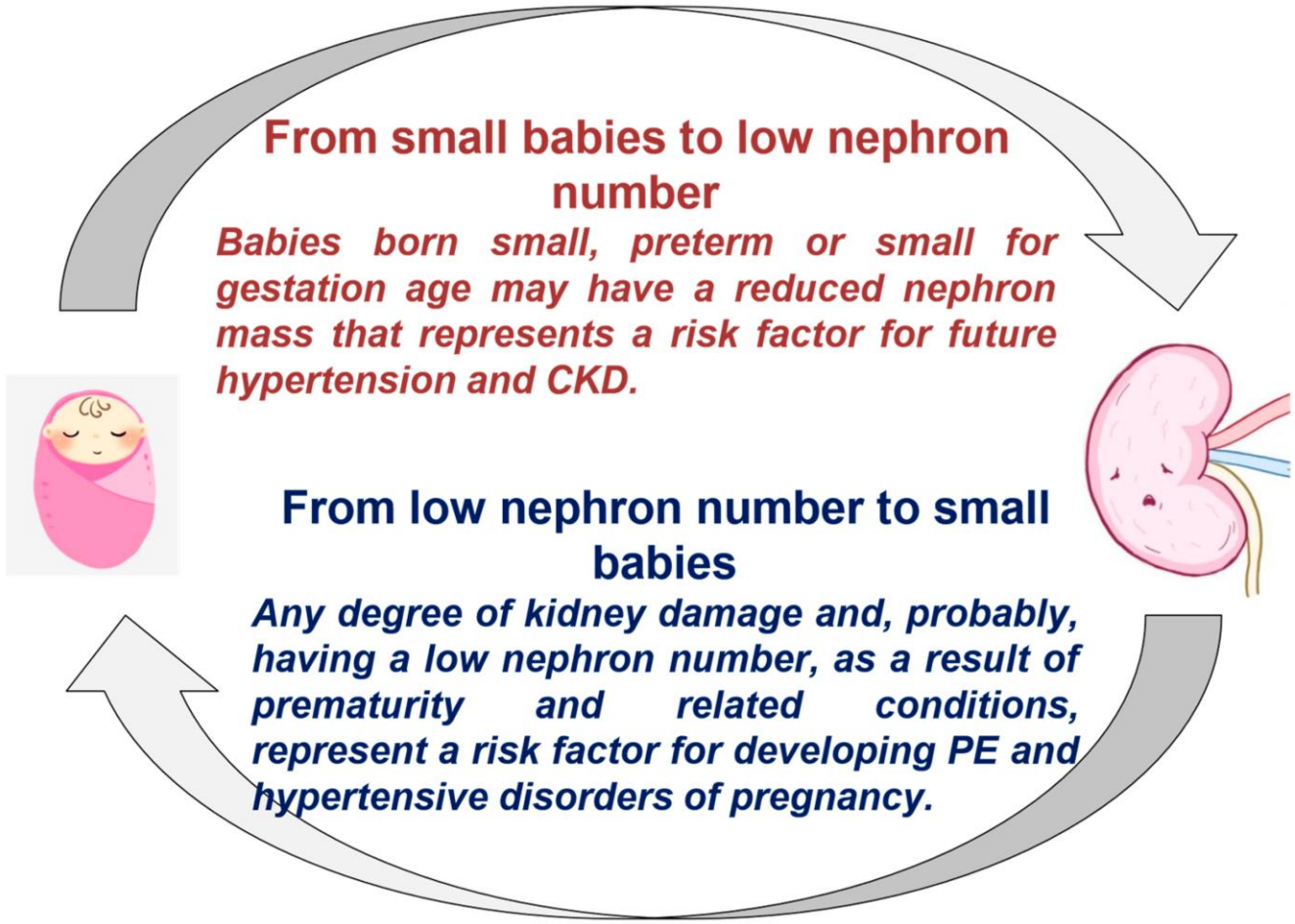
For those newly diagnosed pregnancy ensure proper renal follow up for diagnosis and management






Kate Wiles et al. CJASN doi:10.2215/CJN.15121219

# What about the kids?




- We have improved pregnancy outcomes
- But still many pre-term, low birth weight
- Are we setting them up for CKD & more?

Piccoli, G.Bet al. J. Clin. Med. 2022, 11, 2535.

# Which makes you think…

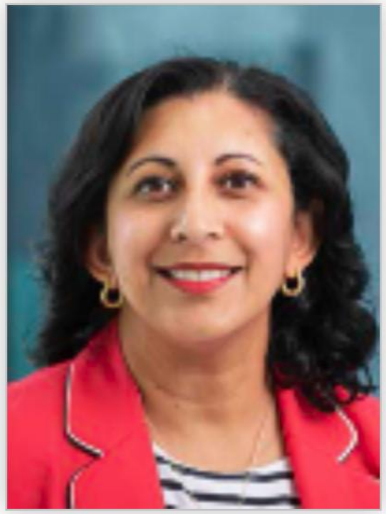
NK:

Lupus since 1999

Pregnancy in 2001

24 years later!

Caught up with NK on a zoom consult 17.3.2025



# Development of an ISN-supported, globally-focused, Train the Trainer Program for Pregnancy and Kidney Disease

**Prof Shilpanjali Jesudason, Royal Adelaide Hospital, Australia and**
**Prof Michelle Hladunewich, Sunnybrook Health Science Centre, Canada**
**on behalf of the Pregnancy and Kidney Disease Train The Trainer Faculty and Members**

WCN 2024 POSTER

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Co-leads – Shilpanjali Jesudason, Australia and Michelle Hladunewich, Canada

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- Angela Makris (Australia)
- Andrea Oliverio (USA)
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- Giorgina Piccoli (Italy/France)
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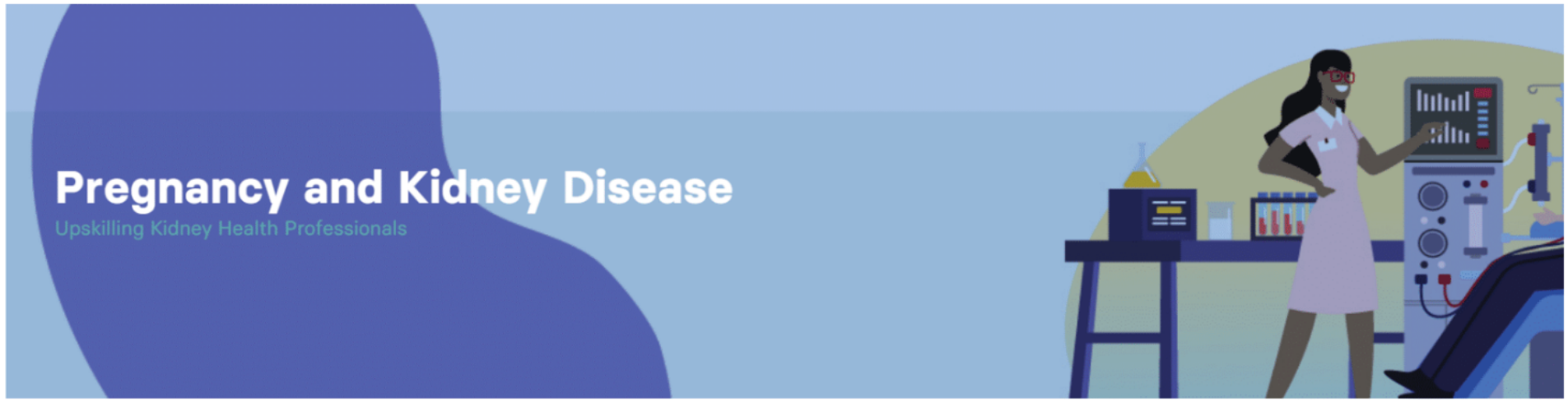
- Sarah Dahlan (Saudi Arabia)
- Dalia Younis Madian (Egypt)

# Coming resource: ISN-supported, globally-focused, Train the Trainer Program for Pregnancy and Kidney Disease - TTT

- Led by Prof Shilpanjali Jesudason, Royal Adelaide Hospital, Australia and
- Prof Michelle Hladunewich, Sunnybrook Health Science Centre, Canada
  on behalf of
- the Pregnancy and Kidney Disease Train The Trainer Faculty and Members




https://academy.theisn.org/products/isn-pregnancy-and-kidney-disease-toolkit

# Example of Curriculum

## Pregnancy in Dialysis Recipients

1. **Epidemiology of pregnancy in dialysis recipients (haemodialysis and peritoneal dialysis)**
2. **Preconception Counselling for patients with advanced CKD and receiving dialysis**
3. **Pregnancy Outcomes in women receiving dialysis**
4. **Managing Dialysis in Pregnancy**
    1. Dialysis regimens and adjustments during pregnancy – hemodialysis and peritoneal dialysis
    2. Residual kidney function and dialysis intensity in pregnancy
    3. Fluid management in dialysis recipients during pregnancy
    4. Managing Nutrition, Anemia and Bone / Mineral Metabolism in dialysis recipients during pregnancy
    5. Managing Dialysis Access in pregnancy
    6. Home dialysis and pregnancy
5. **Post-partum management**
6. **Ethical issues – dialysis resourcing**

# Our Goal with this series

Ripple Effect of teaching globally

Strengthen confidence and capability in caring for women with kidney disease across the reproductive lifespan.

Case Based, Practical, Applicable Teaching in Obstetric Nephrology

# I'm forever grateful to:

**Phil Webster**
**Kate Wiles**
**Kate Bramham**

**Matt Hall**
**Sue Carr**
**Nigel Brunskill**
**Louise Webster**

**Mike de Swiet**
**Catherine Nelson-Piercy**
**Andrew McCarthy**
**Mandish Dhanjal**
**Muna Noori**
**Floria Cheng**
**Catherine Baker**
**Mandie O'Loughlin**
**Jodie Barry**









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NHS Trust

Nottingham University Hospitals NHS
NHS Trust

*And particular thanks to all the women – not least those who joined our studies*

**AND:**

- **All the QCH obstetricians**
- **Prof Lucy Chappell**
- **Dr Shilpa Jesudasen**
- **And many visiting fellows**

# Back in 2012 – my concerns were mostly focused on whether safe to switch from MMF to azathioprine

**Practice Point 10.3.2.1:**
Patients with active LN should be counselled to avoid pregnancy while the disease is active or when treatment with potentially teratogenic drugs is ongoing, and for ‡6 months after LN becomes inactive.

| SUPPORTING EVIDENCE | Reference |
|---|---|
| Kidney outcomes and risk factors for nephritis (flare/de novo) in a multiethnic cohort of pregnant patients with lupus | Buyon J et al CJASN 2017 |
| A national study of the complications of lupus in pregnancy. | Clowse M et al Am J Obstet Gynaecol 2008 |
| Maternal outcome in pregnant women AND fetal outcome and recommendations of pregnancies in LN in the 21st century. A prospective multicenter study | Moroni G et al J Autoimmun 2016 2 papers |
| Modern management of pregnancy in SLE: from prenatal counselling to postpartum support | Gamba A et al J of Clin Med 2024 |

KDIGO 2024 LN Guideline. Kidney Int Suppl. 2024, 105:S1-S69

# Dilemmas in glomerular disease in pregnancy – diagnosis

- Screening tests  - always check immunology and virology:

- ANA, ANCA, dsDNA, complement, immunoglobulins (and PEP/FLC if any suspicions), APLA2R, (antiGBM)
- Hep B (core antibody) and HepC

- If all negative, normal function, normal BP and non nephrotic proteinuria, generally just monitor but plan to see post partum