CPPE

CENTRE FOR PHARMACY POSTGRADUATE EDUCATION

Acute kidney injury (AKI) learning campaign 2015

NHS Health Education England

MANCHESTER 1824 The University of Manchester

Acute kidney injury learning campaign

In conjunction with the Think Kidneys programme run by the UK Renal Registry.

What is acute kidney injury?

- Describes a rapid deterioration in kidney function over hours or days

- Characterised by reduced urine output and/or raised serum creatinine (or reduced eGFR in children and young people)

Acute kidney injury is defined by any of the following:

- a rise in serum creatinine of 26 micromol/Litre or more within 48 hours
- a 50 percent or greater rise in serum creatinine from a baseline, known or presumed to have occurred in the last seven days
- a fall in urine output to less than 0.5 mL/kg/hour for more than six hours in adults, or eight hours in children and young people
- a 25 percent or greater fall in eGFR in children and young people within the last seven days.

Stages of acute kidney injury

Stage	Serum creatinine	Urine output
1	Increase by greater than or equal to 26 micromol/Litre within 48 hours **OR** 1.5-1.9 times baseline	Less than 0.5 mL/kg/hour for 6-12 hours
2	2-2.9 times baseline	Less than 0.5 mL/kg/hour for 12 hours or more
3	3 times baseline **OR** Increase to greater than or equal to 354 micromol/Litre **OR** Decrease in eGFR to less than 35 mL/min/1.73m2 in children and young people **OR** Initiation of renal replacement therapy	Less than 0.3 mL/kg/hour for 24 hours or more **OR** No urine output for 12 hours or more

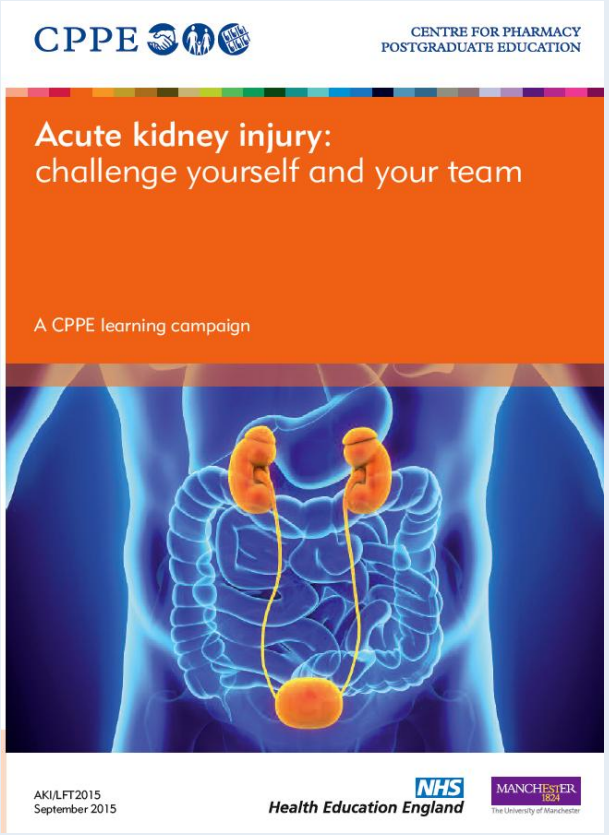
Acute kidney injury – facts and figures

- Up to 100,000 deaths a year
- Up to 33% of deaths could be avoided
- One in five emergency hospital admissions has AKI
- Over 60% AKI starts in the community
  - (which means 40% starts in hospital)!
- AKI costs the NHS an estimated £500,000 per year

Key message

AKI can be prevented and pharmacy teams have a key role to play.

- Pause/avoid high risk drugs
- Stay hydrated



Risk factors for acute kidney injury

- Previous AKI
- Existing chronic kidney disease (CKD)
- Age
- Heart failure
- Peripheral vascular disease
- Diabetes
- Liver disease

Triggers for acute kidney injury

- Sepsis or infections
- Hypovolaemia (dehydration or bleeding)
- Hypotension
- Some prescribed and OTC medicines

Risky medicines

- Some medicines can damage the kidney or damage its function under certain circumstances

NSAIDs

ACE inhibitors

ARBs

Diuretics

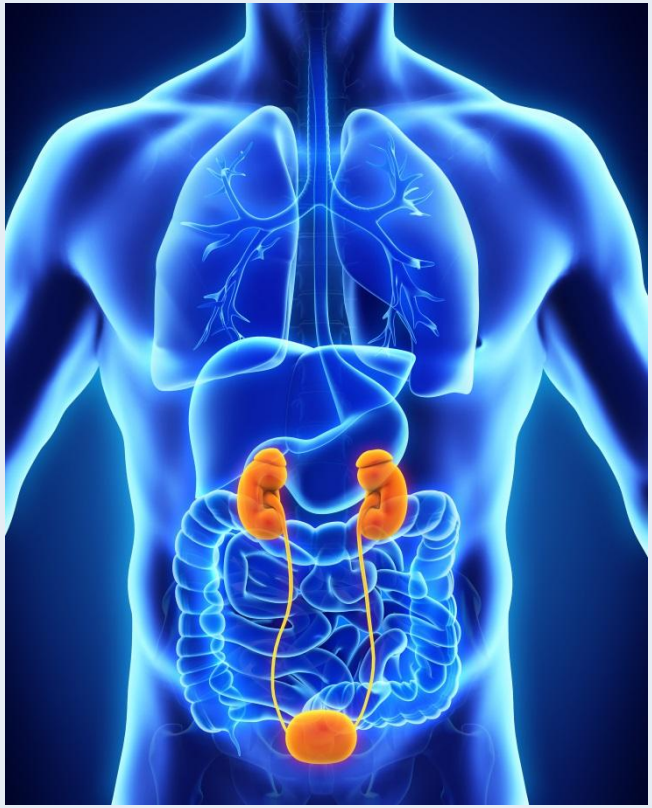
- Particularly in patients with risk factors and triggers

Medicines optimisation strategies

- **Avoid** the use of risky medicines in patients with risk factors eg, CKD
- **Monitor** renal function when risky medicines started or increased dose
- **Withold** ACE inhibitors or ARBs for 24 to 48 hours if patients become acutely unwell (Sick day ~~rules~~ guidance)
- **Review** or **Stop** risky medicines if confirmed AKI

Understanding kidneys

- Only 50 percent of people know kidneys make urine
- Only 12 percent of people know kidneys are involved in removing medicines from the body
- Only 22 percent of people realise medicines can affect kidney health



Case study

Margaret - 72-year-old lady admitted to MAU following a fall - found collapsed on the floor and confused.

- Suspected UTI
- Margaret is in pain as she sprained her ankle during her fall and so she is prescribed when required, by the junior doctor.
- Urgent U+Es have been requested

Medical history :
Congestive cardiac failure (CCF).
Chronic kidney disease Stage 3 with proteinuria (G3A2)
Blood pressure on admission is 96/60

Drug history:
Irbesartan 300 mg daily,
Bisoprolol 10 mg daily
Furosemide 80 mg daily I
Aspirin 75 mg daily
Atorvastatin 20 mg at night.

(Previously took fosinopril but developed a dry cough and so it was changed to irbesartan by her GP.

Case study

What factors could increase Margaret's risk of developing acute kidney injury?

Case study

What advice would you give regarding Margaret's medicines and her risk of acute kidney injury?

Talking about kidneys

Talk about dehydration – “drink enough so you are not thirsty for long periods and increase fluid intake during hot weather or exercise and if you are taking any ‘risky’ medicines”

Six week campaign – six challenges

Animations

e-challenge

DLP/ Twitter chat

Articles

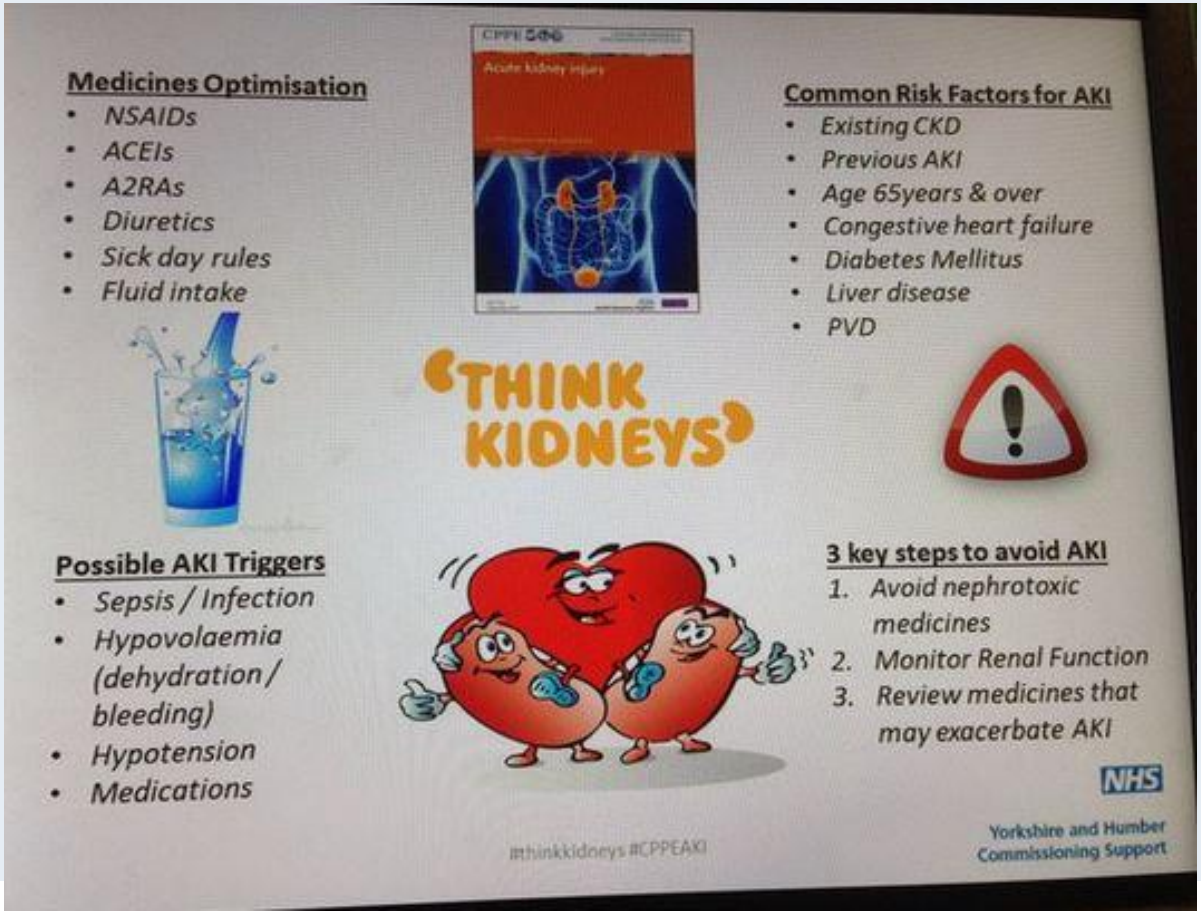
Podcast/ poster

Pledges

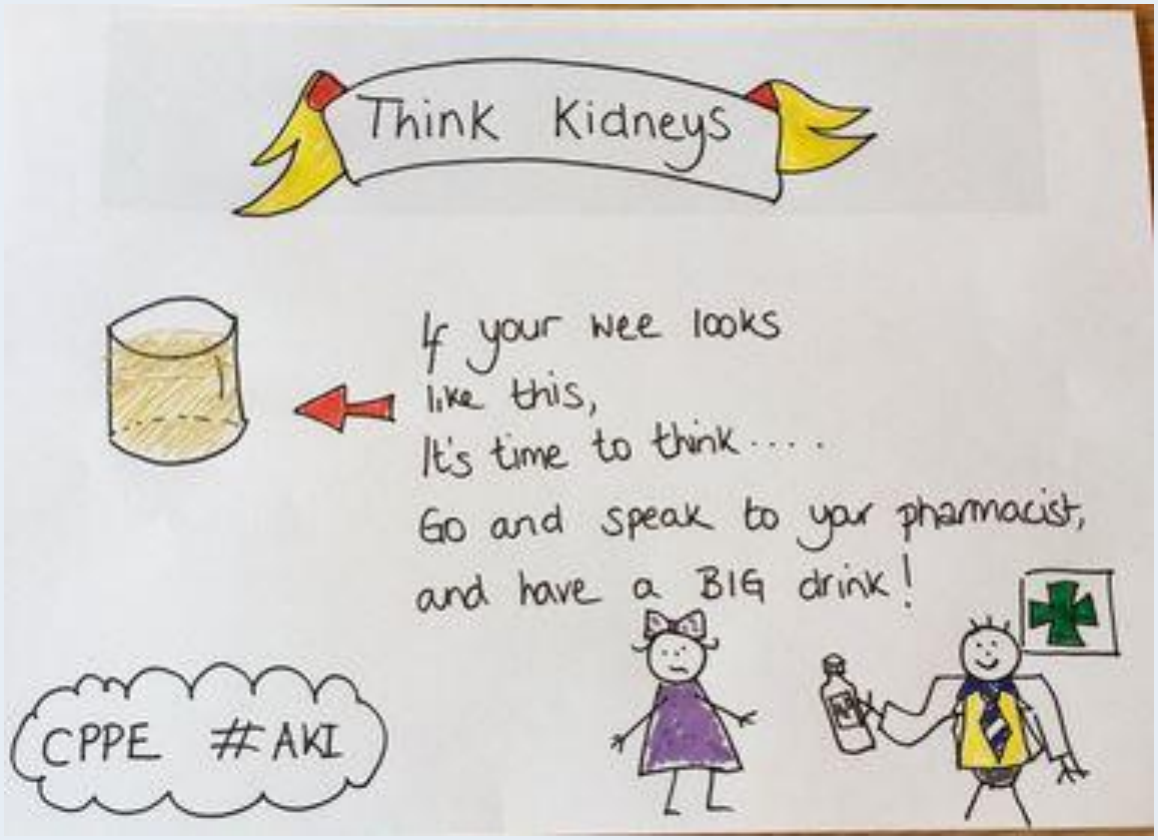
Challenge 5 – Planning a change – THIS WEEK!

Develop a poster on your key message regarding AKI and send this to info@cppe.ac.uk or share on Twitter #CPPEAKI

Example poster

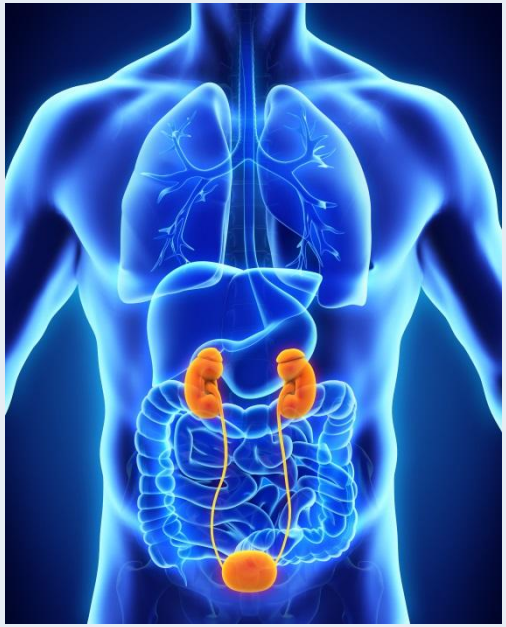


And another!


Think Kidneys
If your wee looks like this,
It's time to think....
Go and speak to your pharmacist, and have a BIG drink!
CPPE #AKI

Challenge 5 – Planning a change – THIS WEEK!

Listen to a podcast by a pharmacist whose mother developed AKI and hear her advice on spotting the signs.



Challenge 6 – Make your pledge

Make a pledge to do one thing that will make a difference to people at risk of developing AKI.

Suggested pledges – hospital

Recognise risky medicines, check awareness of sick day guidance, identify whether currently at AKI risk and be ready to make recommendations on withholding medicines to reduce AKI risk, if appropriate.

Summary

- Acute kidney injury describes a rapid deterioration in a patient's renal function over hours or days.
- If a patient already has risk factors for acute kidney injury and further triggers occur, then it can result in acute kidney injury.
- Medicines are implicated as one of the triggers for acute kidney injury and the pharmacy team has an essential role to play in advising patients and other healthcare professionals to reduce this risk.

Next CPPE events

- Thu 11 Feb - Emergency hormonal contraception
  Holiday Inn Taunton, 7:30pm - 9:30pm (event no. 44233)
- Sat 27 Feb - Clinical study day
  Hilton Bristol Hotel, 10:00am - 4:00pm (event no. 44216)
- Thu 10 Mar - Parkinson's disease - focal point
  Holiday Inn Taunton, 7:30pm - 9:00pm (event no. 44231)
- Wed 13 Apr - Polypharmacy - focal point
  Yeovil Town Football Club, 7:30pm - 9:00pm (event no. 44288)

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