STOP AKI in Malawi

London Acute Kidney Injury Network

When to Refer to a Nephrologist

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When to Refer to a Nephrologist

Concentrate on when to refer inpatients

- GPs have clear guidance on when to refer patients with suspected CKD / renal parenchymal disease'

- Who to refer for inpatient review

- Who to refer to renal outpatients following an episode of AKI

Patient 1

- 75 year old 95 kg white male
- Previous nephrectomy for RCC 3 years ago
- HTN
- Baseline Cr 137
- Presents feeling unwell and admitted by medicine
- Cr is 480
- Urine dipstick is blood +++ protein +

Patient 1

Patient 1

- Its Friday afternoon

Patient 1

- Its Friday afternoon
- A nephrologist is summoned…..

Patient 1

- Its Friday afternoon
- A nephrologist is summoned…..

- Good or bad idea?

Patient 1

- Its Friday afternoon
- A nephrologist is summoned…..

- Good or bad idea?
- Correct referral?

THINK !

Checklists and guidelines are not there to replace the brain they act as reminders and diagnostic aids

'STOP' AKI and Checklist

The London AKI Network has Developed the 'STOP' Acronym to Improve Awareness of AKI Causes

STOPaki

Sepsis & hypoperfusion Toxicity Obstruction Parenchymal kidney disease

Patient Name: .....

No: ..... DOB: .....

SEPSIS & HYPOPERFUSION	YES	NO	N/A
Severe Sepsis			
Haemorrhage			
Dehydration			
Cardiac Failure			
Liver Failure			
Renovascular Insult (E.G. Aortic Surgery)			

TOXICITY	YES	NO	N/A
Nephrotoxic Drugs			
Iodinated Radiological Contrast			

OBSTRUCTION	YES	NO	N/A
Bladder Outflow			
Stones			
Tumour			
Surgical Ligation Of Ureters			
Extrinsic Compression (E.G. Lymph Nodes)			
Retroperitoneal Fibrosis			

PARENCHYMAL KIDNEY DISEASE	YES	NO	N/A
Glomerulonephritis			
Tubulointersitial Nephritis			
Rhabdomyolysis			
Haemolytic Uraemic Syndrome			
Myeloma Kidney			
Malignant Hypertension			

Patient 2

- 77yo 55kg female
- Frail
- Has a recent diagnosis of bronchiectasis following 2 years of symptoms
- Admitted unwell with chest infection
- Cr 121 on admission to hospital – no previous result

Patient 2

- During admission; Cr 140, 155, 170
- Dipstick blood + and protein +
- Admitting team ask for a nephrology review

- Is this an appropriate request?

- What would you do?

Patient 2

Scenario A

- Dismissed by nephrology as ‘septic AKI’
- Patient slowly recovers from chest infection
- Cr recovers to 129
- Blood + and Protein + remain
- After a further 2 weeks rehab pt discharged

- Should she be referred to renal outpatients?

Patient 2

Scenario B

- The Critical Care team did a vasculitis screen
- ANCA +ve, PR3 18
- Now what?

Patient 2

Scenario B

- The Critical Care team did a vasculitis screen
- ANCA +ve, PR3 18
- Now what?

- You increase her steroids from 30mg to 60mg
- 1 week later Cr stuck at 200
- Now what?

Patient 2

Scenario C

- You suggested a vasculitic screen over the phone
- Its –ve
- 2 weeks later she is ready for discharge and Cr stuck at 165
- Should she come to renal clinic?
  - If yes, when?
  - If no, what advice will you give the GP?

Patient 3

- 54yo 96kg male
- DM, HTN
- Cellulitis leg following spider bite
- Cr 87 on admission
- Deteriorates on the ward over next 24 hours
- Admitted to critical care unit

Patient 3

D3 post admission

- ACS - Pulmonary oedema – ventilated
- NADR + Dobutamine
- AKI - CRRT

- Should he be referred to Nephrology?

Patient 3

Scenario A

- D7 post admission
- Extubated, NADR off
- Cr 546 off filter
- u/o 320 mLs in last 24 hours

- Should he be referred to nephrology?

Patient 3

Scenario A(i)

- D7 post admission
- Extubated, NADR off
- Cr 546 off filter
- u/o 1320 mLs in last 24 hours

- Should he be referred to nephrology?

Discontinuation of continuous renal replacement therapy: A *post hoc* analysis of a prospective multicenter observational study*

Shigehiko Uchino, MD; Rinaldo Bellomo, MD; Hiroshi Morimatsu, MD; Stanislao Morgera, MD; Miet Schetz, MD; Ian Tan, MD; Catherine Bouman, MD; Ettiene Macedo, MD; Noel Gibney, MD; Ashita Tolwani, MD; Heleen Oudemans-van Straaten, MD; Claudio Ronco, MD; John A. Kellum, MD

u/o 450-500 mLs per day

Patient 3

Scenario A(ii)

- D7 post admission
- Extubated, NADR off
- Cr 546 off filter
- u/o 1320 mLs in last 24 hours
- Needs i/p angio

- Should he be referred to nephrology?

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Interventional Cardiology

A Simple Risk Score for Prediction of Contrast-Induced Nephropathy After Percutaneous Coronary Intervention

Development and Initial Validation

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New York, New York

NOT VALIDATED IN ACUTE SETTING / AKI

Patient 3

Scenario B

- Recovers well over next 4 days
- Starts to pass urine and the CRRT is stopped
- D11 post admission and at the time of hospital discharge the Cr is 365 (D7 546)

- Should he be referred to Nephrology for f/u?

Patient 3

Scenario B

- Recovers well over next 4 days
- Starts to pass urine and the CRRT is stopped
- D11 post admission and at the time of hospital discharge the Cr is 175

- Should he be referred to Nephrology for f/u?

Patient 3

Scenario B

- Recovers well over next 4 days
- Starts to pass urine and the CRRT is stopped
- D11 post admission and at the time of hospital discharge the Cr is 95

- Should he be referred to Nephrology for f/u?

Follow up after CRRT data

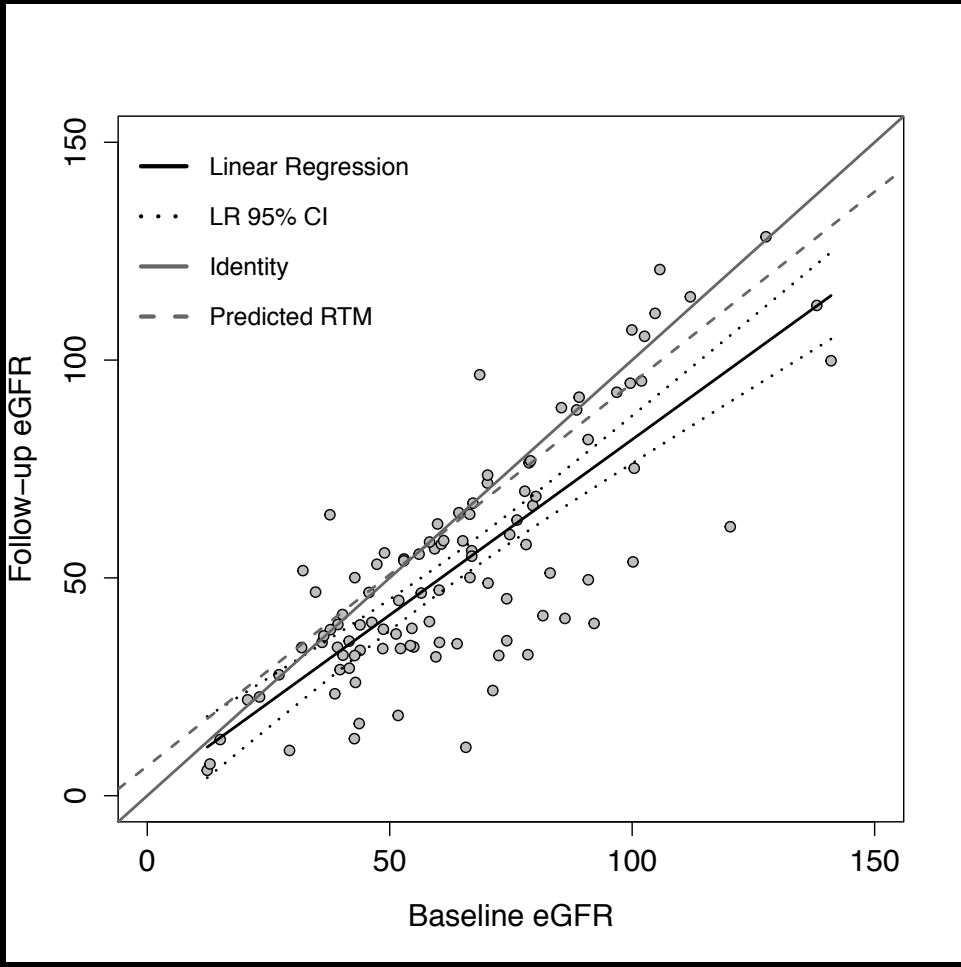
under review:

Retrospective audit

- 219 survivors of RRT requiring AKI from 5544 critical care admissions who were not known to Renal services
- 124 (57%) had a f/u creatinine (109 had a baseline)
- 12% saw a nephrologist

Results

- Linear regression analysis
- Consistent trend to lower GFR at follow up
- r^2 0.63
- Prevalence of CKD III from 49-70% $p<0.0001$
- Double no. of patients with CKD IV and V



Patient 3

YES

- he should be referred to nephrology!

  But only once he had survived to critical care discharge!

Patient 4

- 68 yo 85kg female
- HTN, CCF, Rheumatoid and osteoarthritis
- Admitted for Elective THR
- Cr 82 2 months ago at pre op clinic
- Dipstick –ve

Patient 4

Scenario A

- Stormy intra and post op course
- post op Cr rises to peak 237 on D3
- Cr 54 on discharge at D12

- Should she be referred to Nephrology for f/u?

Beware the Low d/c Cr

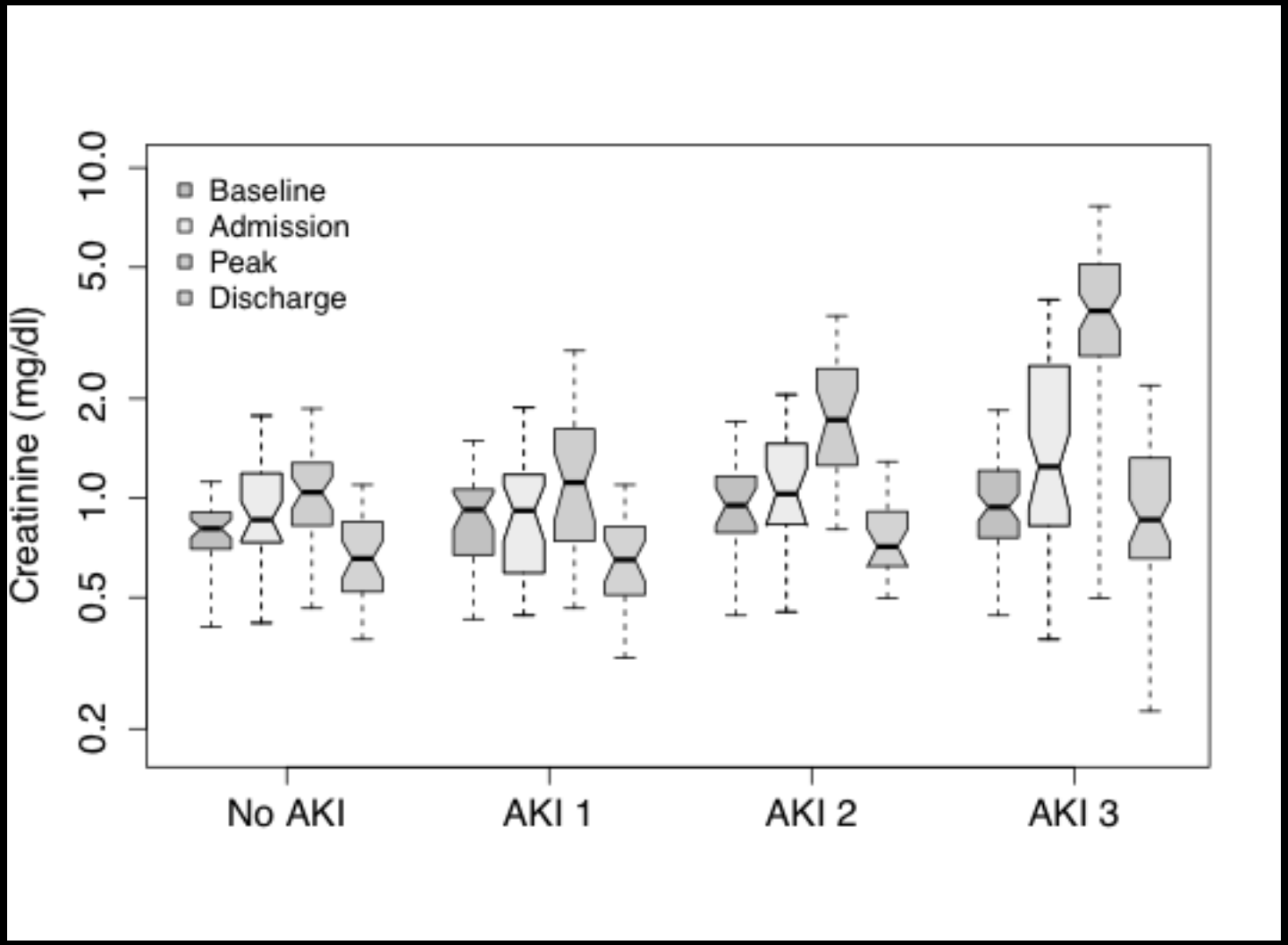
CJASN ePress. Published on April 17, 2014 as doi: 10.2215/CJN.11141113

Article

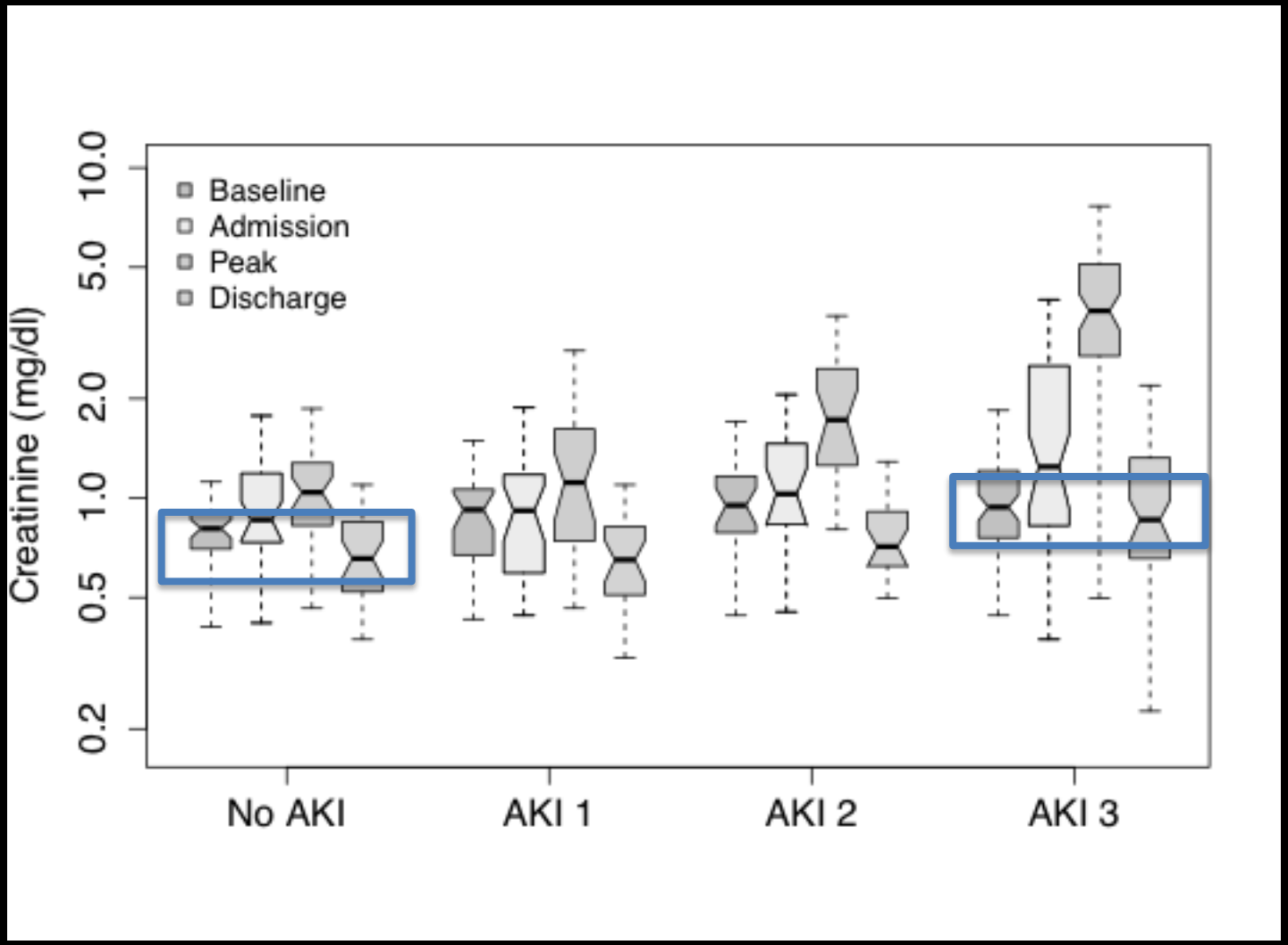
Serum Creatinine Changes Associated with Critical Illness and Detection of Persistent Renal Dysfunction after AKI

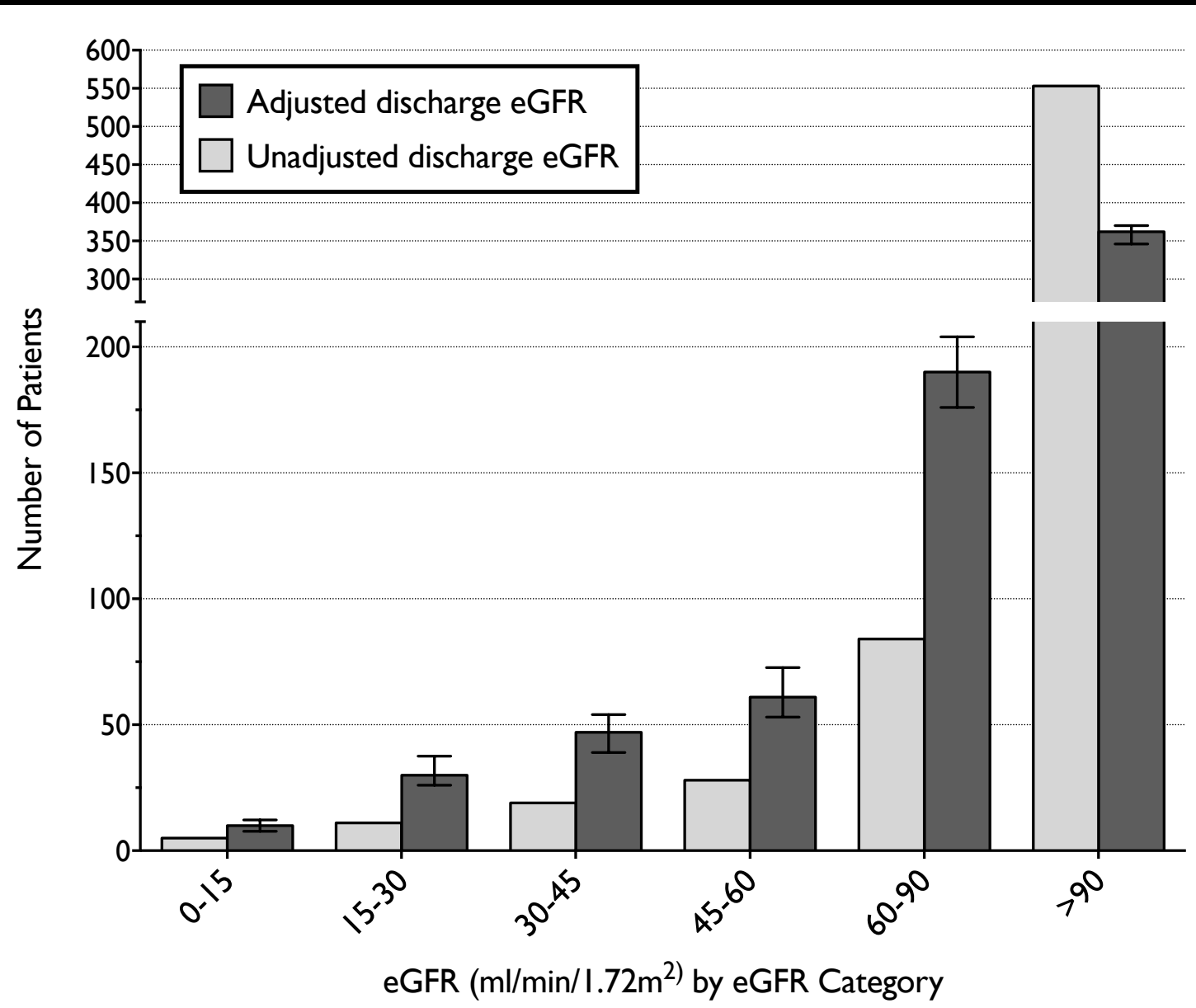
John R. Prowle,[†‡] *Ivana Kolic,** *Jeremy Purdell-Lewis,** *Rachelle Taylor,** *Rupert M. Pearse,*[‡] *and Christopher J. Kirwan*[*†‡]

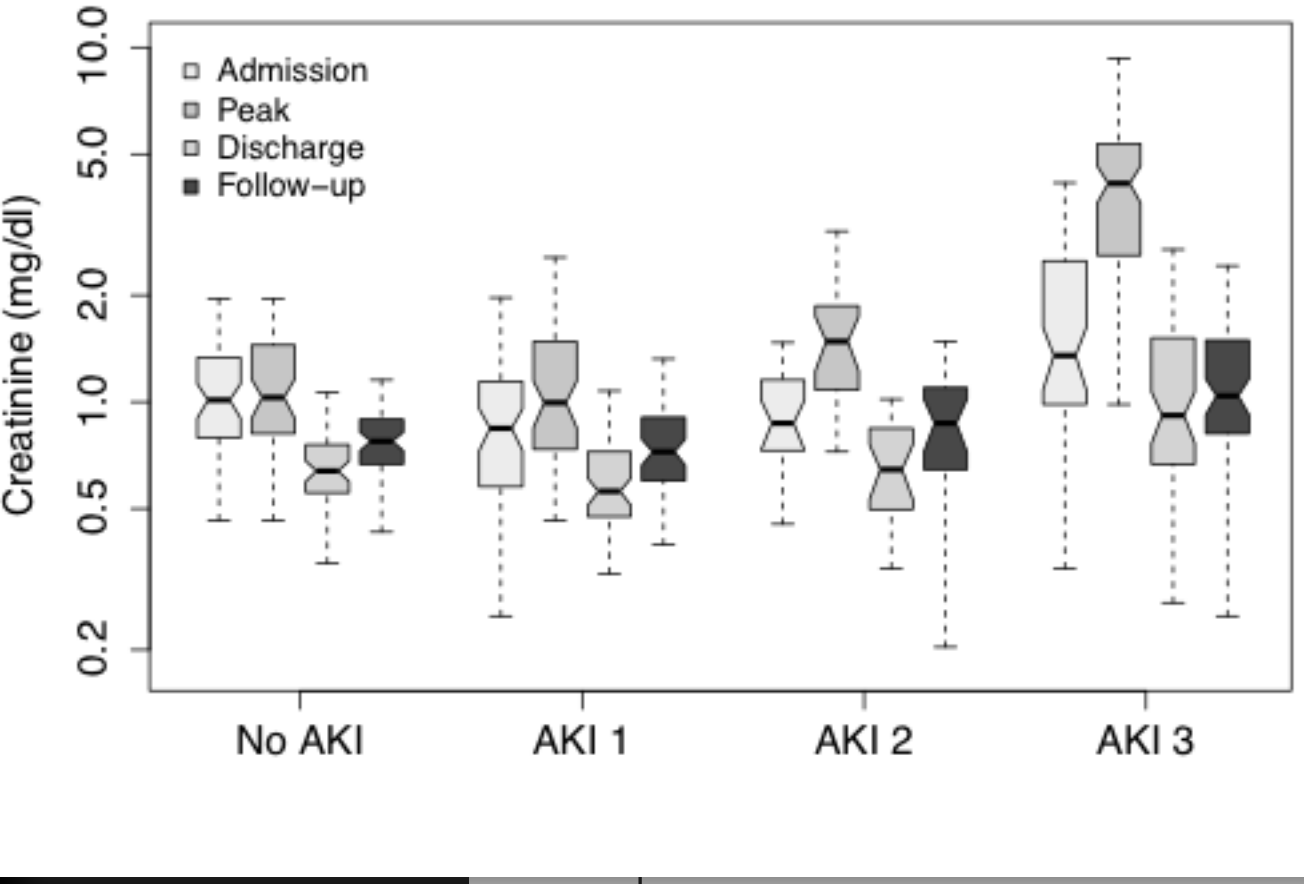
Beware the Low d/c Cr

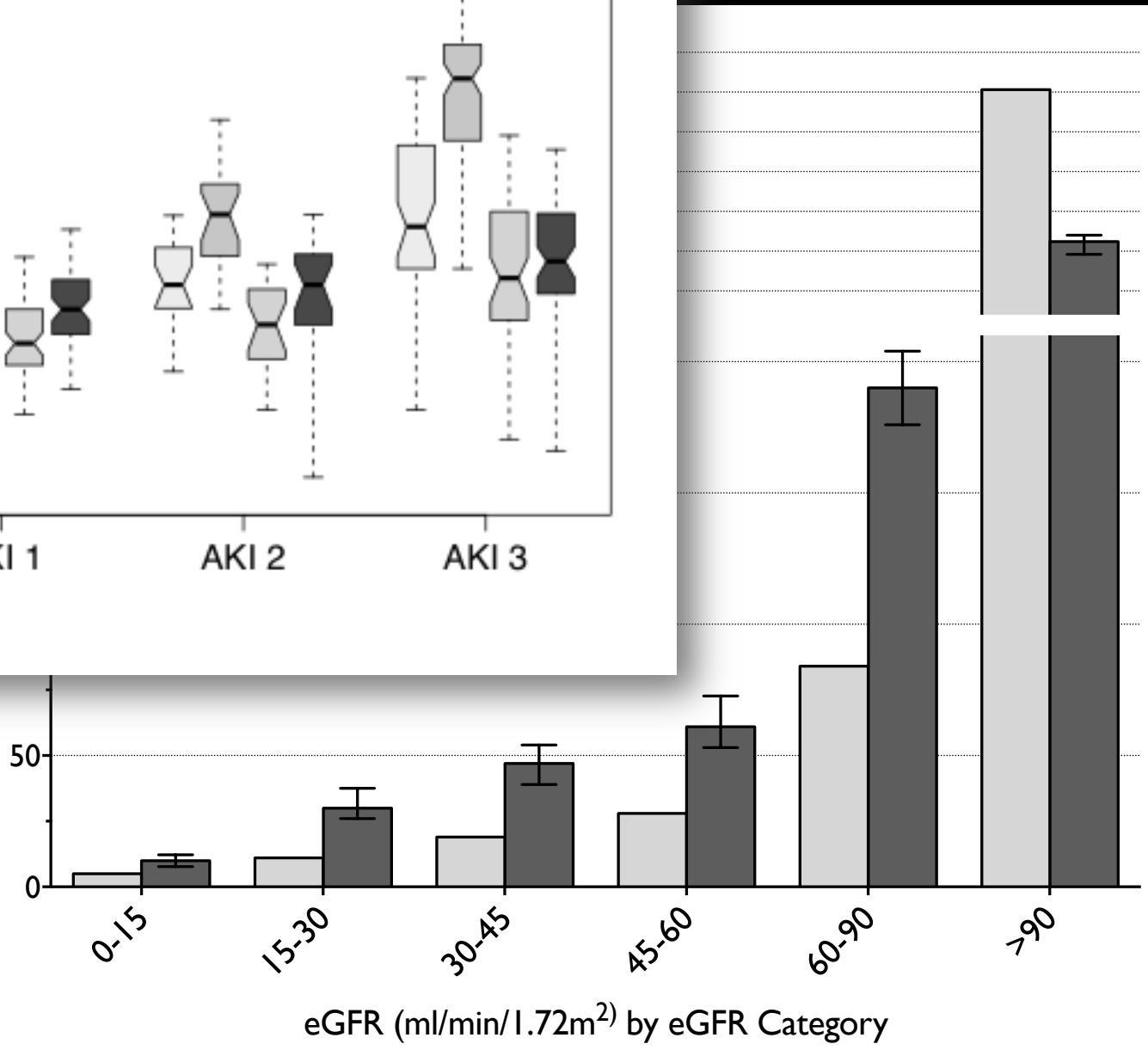


Beware the Low d/c Cr




Adjusted discharge eGFR
Unadjusted discharge eGFR
Number of Patients
600
550
500
450
400
350
300
200
150
100
50
0
0-15
15-30
30-45
45-60
60-90
>90
eGFR (ml/min/1.72m2) by eGFR Category


Admission
Peak
Discharge
Follow–up
Creatinine (mg/dl)
0.2
0.5
1.0
2.0
5.0
10.0
No AKI
AKI 1
AKI 2
AKI 3


50
0
0-15
15-30
30-45
45-60
60-90
>90
eGFR (ml/min/1.72m2) by eGFR Category

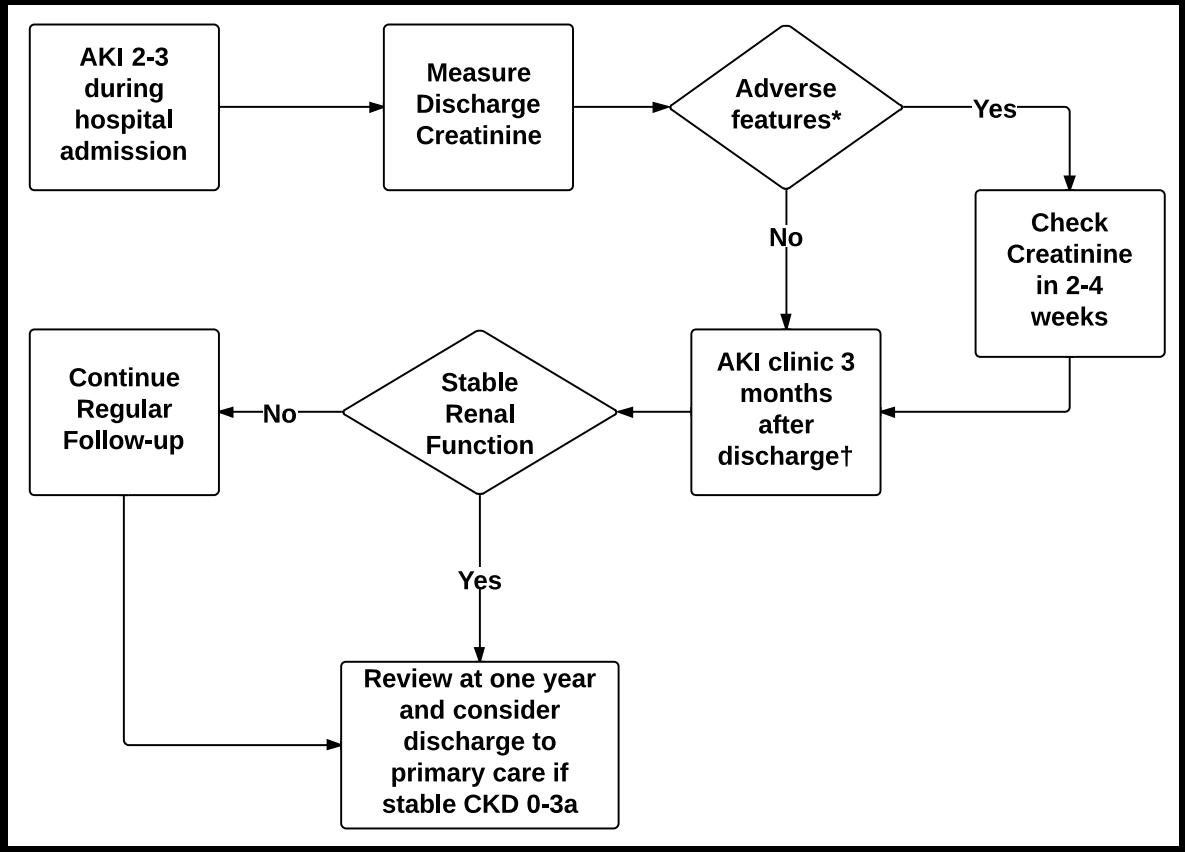
When to Refer to a Nephrologist

As in-patients

- GN / intrinsic renal disease
- AKI 3 / may need RRT
- Likely to need ongoing RRT as single organ failure from critical care
- Palliative care / withdrawal decisions

When to Refer to a Nephrologist

To out-patients



*Cr > 2mg/dL

†Suspect GN
Nephrolithiasis
Rapid progression

Beware the ‘recovered’ renal function