Chronic Kidney Disease (CKD)

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Content of session

- Functions of the kidney (recap)
- Classification of chronic kidney disease (CKD)
- When to suspect, screen or identify for CKD
- Informing and educating patients
- Case studies
- Main points of care including investigation/tests
- Renal replacement therapy
- Guidelines and resources for managing CKD
- COVID 19 update (April 2020)

Become what you want to be
Functions of the kidney

• Fluid balance

• Excretion of waste (electrolyte and acid-base balance)

• BP control

• Erythropoeitin production (red blood cells)

• Vitamin D3 (healthy bones)

Become what you want to be
Setting the scene: national data

Data from the UK Renal Registry 2019
www.renalreg.com

Primary renal disease (cause)

Growth in numbers of prevalent adult patients by treatment modality

Data from the UK Renal Registry 2019
www.renalreg.com
# International staging of CKD

<table>
<thead>
<tr>
<th>GFR CATEGORY</th>
<th>eGFR ((\text{mls/min/1.73m}^2))</th>
<th>KIDNEY FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>&gt;90</td>
<td>Normal</td>
</tr>
<tr>
<td>G2</td>
<td>60-90</td>
<td>Mild reduced</td>
</tr>
<tr>
<td>G3a</td>
<td>45-59</td>
<td>Mild to moderate reduced</td>
</tr>
<tr>
<td>G3b</td>
<td>30-44</td>
<td>Moderate reduced</td>
</tr>
<tr>
<td>G4</td>
<td>15-29</td>
<td>Severe reduced</td>
</tr>
<tr>
<td>G5</td>
<td>&lt;15</td>
<td>Kidney failure</td>
</tr>
</tbody>
</table>
Testing for CKD

Blood (U&E)
Urine (Protein)

Become what you want to be
Progression of CKD

<table>
<thead>
<tr>
<th>GFR Categories (ml/min/1.73 m²)</th>
<th>Description and range</th>
<th>Persistent albuminuria categories</th>
<th>Description and range</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>Normal or high</td>
<td>≥90</td>
<td>Normal to mildly increased</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G2</td>
<td>Mildly decreased</td>
<td>60-89</td>
<td>Moderately increased</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G3a</td>
<td>Mildly to moderately decreased</td>
<td>45-50</td>
<td>Severely increased</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G3b</td>
<td>Moderately to severely decreased</td>
<td>30-44</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G4</td>
<td>Severely decreased</td>
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</tr>
</tbody>
</table>

Green: Low risk (if no other markers of kidney disease, no CKD); Yellow: Moderately increased risk; Orange: High risk; Red, very high risk.
- On average GPs test 86% of people with diabetes for CKD (using annual blood tests), but only 54% have the relevant annual urine tests.

- For other groups (such as those with hypertension), ACR rates are below 30%.
Managing CKD – key messages

1. Finding people with CKD and coding them
2. Explaining to people they have CKD
3. Delaying the progression of CKD
4. Identifying progressive disease and refer if appropriate

Become what you want to be
Who to test for CKD? (NICE (2014)

Offer people testing for CKD if they have any of the following risk factors:
- diabetes
- hypertension
- cardiovascular disease (ischaemic heart disease, chronic heart failure, peripheral vascular disease and cerebral vascular disease)
- structural renal tract disease, renal calculi or prostatic hypertrophy
- multisystem diseases with potential kidney involvement – for example, systemic lupus erythematosus
- family history of stage 5 CKD or hereditary kidney disease
- opportunistic detection of haematuria or proteinuria.
CKD Register in GP systems

• “CKD is defined as either kidney damage (proteinuria, haematuria or anatomical abnormality) or GFR <60 ml/min/1.73 m² present on at least 2 occasions for ≥90 days”

• “With new finding of eGFR <60, repeat within 2 weeks to exclude causes of acute deterioration.”

• Labs use equations for eGFR and use creatinine, gender, age, race
Explaining CKD

• Words are wrong...others may be better
  - kidney damage
  - reduced kidney function
  - part of ageing process

• Need for monitoring
• Part of Health Check (MOT)
• We need to watch out for worsening kidney damage by
  - urine test (protein)
  - blood test (% kidney function)

Become what you want to be
Tests
Explain importance of annual blood and urine test

BP control
Explain that reducing raised BP is a key factor in prevention
Target 140/90 or 130/80 mmHg if diabetes/proteinuria
Advise patients to monitor their own BP at home (if appropriate)

Smoking cessation

Blood sugar control

Lifestyle modification
Explain importance of low salt in diet, taking exercise and keeping to ideal weight.

Medicines management
Give advice on using over-the-counter medicines (particularly anti-inflammatory drugs)
Patients should tell their pharmacist that they have CKD

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Educational approach

https://bartshealth.nhs.uk/patient-information-leaflets
Scroll to bottom of page to view Kidney section

Become what you want to be
Case study

- 83 year old woman with eGFR of 50:
  - Mild short term memory loss
  - History of hypertension and Type 2 DM
  - ACR 2.5 mg/mmol
  - BP 135/75 – on ACEI

- What stage of CKD does she have?
- What is likely cause?
- What would you say to her?
- How would you manage this patient?

Become what you want to be
Case study 2

- 75 year old man with Type 2 diabetes
  - BP 155/90
  - eGFR 42
  - ACR 55 mg/mmol
  - HbA1c 69 mmol/mol
  - Diabetic eye / foot disease
  - On metformin

- What stage of CKD does he have?
- What is likely cause?
- What would you say to him?
- How would you manage this patient?

Become what you want to be
When to refer to renal services

• <15 Usually immediate referral or discussion

• 15-29 Urgent referral or discussion; or routine referral if known to be stable

• 30-59 Routine referral indicated if:

  • Progressive fall in GFR/rise in serum creatinine
    – 5ml/min/1.73m² in one year
    – 10ml/min/1.73m² in 5 years
    – Stage 4 reached (GFR <30)

  • Proteinuria, if ACR>70 or PCR >100mg/mmol

  • Unexplained anaemia (Hb <11 g/dl), abnormal potassium, calcium or phosphate

  • Also ARF, ACR>70, uncontrolled BP (>150/90) despite 3 agents in a patient with stage 3+ CKD
The use of an eGFR projection
One year of preparation to achieve a well-planned start to dialysis

- Delaying the progression of chronic kidney disease
- Initiating dialysis with higher residual renal function
- Managing cardiovascular risk factors, especially BP control
- Reducing anaemia
- Improving nutrition
- Promoting self care options, and pre-emptive transplantation

Become what you want to be
Become what you want to be
Case study

- 84 year old lady, south Asian
- eGFR 8mmols/L
- Very frail with respiratory problems
- Family involved in a decision about dialysis
- They are adamant that haemodialysis (in-centre) dialysis should be started soon

What should you do?
COVID19 and issues for people with kidney disease

• People with a kidney transplant are ‘high-risk and should self-isolate for 12 weeks

• People receiving dialysis in hospital travel together with other people

• People who have COVID19 need to be isolated

Guidance for patients (updated daily)
Recent guidance for staff https://www.nice.org.uk/guidance/ng160

Become what you want to be
Whole talk in one slide

• Identify those at risk (eGFR & proteinuria)

• Encourage self-management

• Manage risk-factors

• Identify progressive disease and undertake timely referral

• Consider all options including conservative management

Become what you want to be
Textbooks

Do check if your university library has these


Become what you want to be
Useful websites

- Renal Association
  http://www.renal.org/pages/pages/other-info/ckd-info.php
- British Renal Society
  http://www.britishrenal.org/CKD/ckdforum.shtml
- National Kidney Federation
  http://www.kidney.org.uk/
- NICE: hypertension guideline
  http://guidance.nice.org.uk/CG127/QuickRefGuide/pdf/English
- Acute Kidney Injury
  https://www.nice.org.uk/guidance/cg169
Please email me
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