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Values normal

Proteinuria and raised serum creatinine

Age over 50 years - consider urgent referral to specialist urological cancer team

If no infection found, refer urgently to specialist urological cancer team

Refer urgently to specialist urological cancer team (within 2 weeks)

Recurrent infection

Consider urgent referral to specialist urological cancer team

Go to specialist investigations

Refer urgently to specialist urological cancer team (within 2 weeks)

Go to specialist investigations

Unexplained non-visible haematuria

Refer urgently to specialist urological cancer team (within 2 weeks)

Recurrent infection

Consider urgent referral to specialist urological cancer team

Go to specialist investigations

Go to specialist investigations

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1 Background information

Quick info:
Scope:
• diagnosis, staging and management of renal cell carcinoma in adults over the age of 18 across both primary and secondary care settings
• treatment options for both localised and metastatic disease
• surveillance issues following radical surgery for renal cell carcinoma
• discussion of management of transitional cell carcinoma
Out of scope:
• palliative care strategies – see 'End of life care in adults' care map
• renal tumours in children
Definition:
• over 80% of kidney cancers are renal cell carcinomas [1]
• the second most common type is transitional cell carcinoma (TCC) [1]
• renal pelvis tumours develop in surface lining cells (transitional epithelial cells), hence the name TCC
• TCC often develops in multiple areas of the upper urinary tract and is also referred to as an upper urinary tract tumour
• approximately 30-75% of upper urinary tract carcinomas have primary or secondary bladder tumours [2]
Incidence:
• 12.49 per 100,000 men all-age (from 2005 to 2007) [6]
• 6.3 per 100,000 women all-age (from 2005 to 2007) [6]
• approximately twice as common in male patients [1]
• incidence is rising throughout the developed world
Risk factors:
• incidence rises with age and is rare under age 40 years [1]
• most likely in men age 60-80 years [1]
• smoking causes approximately 25% of kidney cancers [1]:
  • doubles the risk of renal cell carcinoma
  • increases by four times the risk of transitional cell carcinoma
• hypertension
• obesity
• von Hippel-Lindau syndrome
• family history of renal cell cancer
Prognosis [6]:
• 5-year relative survival in men is 49%
• 5-year relative survival in women is 50%
NB: This information appears on each page of this care map.
References:

2 Information resources for patients and carers

Quick info:
Patients and carers in England can access this care map through NHS Choices at http://healthguides.mapofmedicine.com/choices/map/kidney_cancer1.html
The following resources have been produced by organisations certified by The Information Standard:
• 'Kidney Cancer' (URL) from Bupa at http://www.bupa.co.uk
• 'Kidney Cancer' (URL) from Cancer Help UK at http://www.cancerhelp.org.uk
• 'Kidney Cancer' (URL) from Cancer Research at http://www.cancerresearchuk.org
• 'Kidney Cancer' (PDF) from Patient UK at http://www.patient.co.uk
• 'Kidney Cancer' (URL) from Macmillan Cancer Support at http://www.macmillan.org.uk

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- ‘Kidney Cancers’ (URL) from Datapharm at http://www.medguides.medicines.org.uk
- ‘What is transitional cell cancer of the kidney and ureter?’ (URL) from Cancer Research at http://www.cancerresearchuk.org

The following resources have been written or recommended by national policy bodies or guideline producers whose content has informed this care map:

- ‘Healthcare services for urological cancers’ (PDF) from the National Institute for Health and Clinical Excellence (NICE) at http://www.nice.org.uk
- ‘Understanding NICE guidance: Sunitinib for the first-line treatment of advanced and/or metastatic renal cell carcinoma’ (PDF) from NICE at http://www.nice.org.uk
- ‘Understanding NICE guidance: Treatment of renal cancer with cryotherapy’ (PDF) from NICE at http://www.nice.org.uk
- ‘Understanding NICE guidance: Treating renal cancer with radiofrequency probes passed through the skin into the tumour’ (PDF) from NICE at http://www.nice.org.uk

Information for carers and people with disabilities is available at:

- ‘Caring for someone’ (URL) from Directgov at http://www.direct.gov.uk
- ‘Disabled people’ (URL) from Directgov at http://www.direct.gov.uk

Patient stories describing their care journeys are available at ‘Healthtalkonline’ (URL) from DIPEx at http://www.healthtalkonline.org

Explanations of clinical laboratory tests used in diagnosis and treatment are available at ‘Understanding Your Tests’ (URL) from Lab Tests Online-UK at http://www.labtestsonline.org.uk

The Map of Medicine is committed to providing high quality health and social care information for patients and carers. For details on how these resources are identified, please see Map of Medicine Patient and Carer Information.

NB: This information appears on each page of this care map.

3 Updates to this care map

Quick info:
Date of publication: 29-Apr-2011
Interim update:

Information added in line with the following references:

Date of publication: 31-Jan-2011
Interim update:
The clinical content of this care map has been accredited by the National Cancer Action Team.

Date of publication: 30-Jul-2010
Three floating information points now appear at the top of each care map page. These provide:
- easy access to scope and background information on each page of the care map whilst reducing repetition between care points
- easy access to patient resources/leaflets
- information on care map updates

This care map was updated in line with the following guidelines:

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Further information was provided by the following references: [5-6,11,14]

For further information, please see the care map's Provenance.

The following additional references were used in this care map to inform recommendations about managing patients in hospital:

Practice-based knowledge has been contributed to this care map by:
- Dr Thomas Powles: Senior Lecturer in Urology Cancer and Honorary Consultant in Medical Oncology, Barts and the London NHS trust, UK (clinical facilitator)
- Dr Simon Chowdhury: Consultant Medical Oncologist, Guy's and St Thomas' NHS Foundation Trust, London, UK
- Dr Louise Lim: Specialist Registrar in Medical Oncology, Barts and the London NHS trust, UK
- Dr John Peters: Consultant Urologist, Whipps Cross University Hospital, London, UK
- Dr Anju Sahdev: Consultant Radiologist, Barts and the London NHS trust, UK
- Selected members of Map of Medicine (MoM) Clinical Editorial team and Fellows board

The care map has been completely restructured and redrafted in line with the Map of Medicine editorial methodology and to bring it in line with current clinical practice.

NB: This information appears on each page of this care map.

4 Kidney cancer - clinical presentation

Quick info:

Kidney cancer is often asymptomatic until an advanced stage – in approximately 37% of cases, the tumour is detected incidentally during imaging carried out for other reasons [1].

European Association of Urology (EAU) guidelines note that the classic triad of flank pain, gross haematuria and palpable abdominal mass is now rare.

Visible blood in the urine (macroscopic haematuria) is the most common symptom, others may include:
- non-visible (microscopic) haematuria
- pain in the back or flank
- palpable abdominal mass
- paraneoplastic syndromes in approximately 30% of patients with symptomatic renal cell carcinoma (RCC), including [3]:
  - hypertension
  - cachexia
  - weight loss
  - pyrexia
  - neuromyopathy
  - amyloidosis
  - elevated erythrocyte sedimentation rate (ESR)
  - anaemia
  - abnormal liver function
  - hypercalcaemia
  - polycythaemia
- non-reducing varicocele
- oedema
- metastases (bone and brain metastases are usually symptomatic) – bone pain or persistent cough

References:

5 History and examination

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Quick info:
History and examination should include:
• whether any is blood seen in urine (visible haematuria)
• symptoms of urinary tract infection (UTI)
• abdominal or flank mass
• back, loin or flank pain:
  • National Institute for Health and Clinical Excellence (NICE) guidelines recommend that patients with persistent loin pain of unexplained origin should be referred for imaging
  • while imaging is awaited, management may continue as per this care map
• lymphadenopathy (cervical)
• assessment of risk factors:
  • history of smoking (previous or current smoker)
  • family history of kidney tumours
  • male patient over age 60 years

The European Association of Urology (EAU) suggests physical examination is of limited value in diagnosing renal cell carcinoma (RCC), but that radiological examinations should be initiated if any of the following are present:
• palpable abdominal mass
• palpable cervical lymphadenopathy
• non-reducing varicocele
• bilateral lower extremity oedema (suggests venous involvement)

In patients with one or more laboratory or physical findings, the possible presence of RCC should be suspected.

This information was drawn from the following references:

6 Consider differential diagnoses

Quick info:
Possible differential diagnoses for kidney cancer include:
• bladder cancer – see 'Bladder cancer' care map
• ureteric cancer
• upper or lower urinary tract infection (UTI)
• kidney stones
• injury to the ureter
• non-Hodgkin lymphoma
• benign kidney neoplasms
• renal cyst
• renal infarct
• pelvo-ureteric junction obstruction
• acute/chronic pyelonephritis
• Wilms' tumour (rare in adults)

Refer urgently to urology if a malignancy is suspected.

This information was drawn from the following references:

7 Clinical indications for urgent referral

Quick info:
Refer any patient presenting with any one of the following to the local specialist team for urological cancers – patients should be seen within 2 weeks [4]:
• painless visible haematuria – in the absence of symptoms suggesting a urinary tract infection (UTI)
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- persistent UTI and haematuria (either visible or non-visible) – particularly in those over age 40 years
- an abdominal mass with location consistent with a urinary tract origin
- palpable renal mass
- solid renal masses on imaging

Reference:

9 Investigations

Quick info:
Investigations should include the following [1]:
- urinalysis – check particularly for:
  - haematuria
  - proteinuria
  - leucocytosis
- urine culture if infection is suspected
- urine microscopy
- if haematuria is present but no signs of UTI, consider:
  - red cell morphology on urinary sediment (morning sample)
  - urine cytology (note high rate of false positives)
  - serum creatinine and urea
  - full blood count (FBC)

Reference:

10 Haematuria with urinary tract infection (UTI) symptoms

Quick info:
Patient has blood in urine and symptoms suggesting a urinary tract infection (UTI).

11 Unexplained non-visible haematuria

Quick info:
Non-visible haematuria is usually identified microscopically or chemically by dipstick – there should be no frank blood in the urine [5].

Reference:

12 Age 50 years or over - consider urgent referral to specialist urological cancer team

Quick info:
Consider referral to the local specialist urological cancer team – patients should be seen within 2 weeks [4]:
- for patients age 50 years and above; with
- unexplained non-visible haematuria

Reference:

13 Age under 50 years - test for proteinuria and serum creatinine

Quick info:
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Test patients age 50 years and below with unexplained non-visible haematuria for [4]:
• proteinuria
• serum creatinine level
Reference:

14 If no infection found, refer urgently to specialist urological cancer team

Quick info:
Patients with unexplained visible haematuria should be referred to a urologist within the local multidisciplinary team (MDT) for urological cancers and seen within 2 weeks [4].
Reference:

15 Treat if infection confirmed

Quick info:
Treat the urinary tract infection (UTI) [4]:
• if the infection and features (including haematuria) do not resolve or if it recurs, consider referral to specialist urological cancer team
Reference:

16 Recurrent infection

Quick info:
Recurrent urinary tract infection (UTI) is infection that is initially treated but returns at least once [5].
Reference:

18 Values normal

Quick info:
Consider non-urgent referral to a urologist [4]:
• for patients below age 50 years; with
• unexplained non-visible haematuria; but
• no proteinuria and normal serum creatinine
Reference:

19 Proteinuria and raised serum creatinine

Quick info:
Consider referral to a renal physician [7,9]:
• for patients below age 50 years; with
• unexplained non-visible haematuria; and
• proteinuria and raised serum creatinine
Significant proteinuria [16]:
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• in people without diabetes, consider clinically significant proteinuria to be present when the albumin/creatinine ratio (ACR) is 30mg/mmol or more (this is approximately equivalent protein:creatinine ratio 50mg/mmol, or a urinary protein excretion 0.5g/24hours or more)
• in people with diabetes, consider microalbuminuria (ACR more than 2.5mg/mmol in men and ACR more than 3.5mg/mmol in women) to be clinically significant

References:

20  Consider urgent referral to specialist urological cancer team

Quick info:
If a urinary tract infection (UTI) associated with visible haematuria does not resolve on treatment, or recurs, refer patient urgently (to be seen within 2 weeks) to a urologist within the local multidisciplinary team (MDT) for urological cancers [4]:
• this is to exclude malignancy as a first priority, although there are a variety of benign causes for persistent or recurrent UTI

Reference:
Kidney cancer - suspected

Key Dates

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Accreditations

The care map is accredited by:
The Chief Knowledge Officer of the NHS: [Disclaimer]

The care map is accredited by:
National Cancer Action Team (NCAT): [Disclaimer]

Evidence summary for Kidney cancer - suspected

This pathway has been developed according to the Map of Medicine editorial methodology (http://mapofmedicine.com/whatisthemap/editorialmethodology). The content of this pathway is based on high-quality guidelines [1-4,7-10,12,13,15,16] and critically appraised meta-analyses and systematic reviews [11]. Practice-based knowledge has been added by contributors with front-line clinical experience [5,8], including any literature endorsed by the contributor group [14]. The evidence-based, practice-informed pathway has been peer-reviewed by central committees within stakeholder groups.

Search date: Mar-2010

References

This is a list of all the references that have passed critical appraisal for use in the care map Kidney cancer

<table>
<thead>
<tr>
<th>ID</th>
<th>Reference</th>
</tr>
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<tr>
<td>6</td>
<td>Contributors representing the National Cancer Action Team. 2010.</td>
</tr>
</tbody>
</table>
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ID Reference
http://www.rcr.ac.uk/docs/oncology/pdf/Cross_Sectional_Imaging_12.pdf
http://www.nice.org.uk/GC73

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It is not the function of the Chief Knowledge Officer of the NHS to substitute for the role of the clinician, but to support the clinician in enabling access to know-how and knowledge. Users of the Map of Medicine are therefore urged to use their own professional judgement to ensure that the patient receives the best possible care. Whilst reasonable efforts have been made to ensure the accuracy of the information on this online clinical knowledge resource, we cannot guarantee its correctness or completeness. The information on the Map of Medicine is subject to change and we cannot guarantee that it is up-to-date.

National Cancer Action Team (NCAT)
It is not the function of the National Cancer Action Team to substitute for the role of the clinician, but to support the clinician in enabling access to know-how and knowledge. Users of the Map of Medicine are therefore urged to use their own professional judgement to ensure that the patient receives the best possible care. Whilst reasonable efforts have been made to ensure the accuracy of the information on this online clinical knowledge resource, we cannot guarantee its correctness or completeness. The information on the Map of Medicine is subject to change and we cannot guarantee that it is up-to-date.