key points

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Kidney cancer is the seventh most common cancer in the UK, accounting for 3% of all new cases in 2015. Incidence rates for kidney cancer are projected to rise by 26% between 2014 and 2035, to 32 cases per 100,000 people per annum. Renal cell carcinoma (RCC) accounts for 80% of kidney cancers, of which clear cell (ccRCC) is the main subtype. There is a male preponderance in a ratio of 3:2.

Smoking, obesity and hypertension are common risk factors and all three demonstrate a dose-response relationship with the relative risk of RCC. Although RCC is not a typical occupational disease, exposure to trichloroethylene (metal degreaser) has been implicated. Malignant cyst formation may occur in chronic renal failure patients with acquired kidney cyst disease. There is a two-fold increase in risk of RCC in those with an affected first-degree relative, and 2-3% of RCC cases are due to a recognised hereditary syndrome.

More than half of RCCs are detected incidentally on radiological imaging reflecting its often occult presentation. Nevertheless, it is recognised that a GP referral is the most common route to diagnosing kidney cancer. RCC should be suspected in the presence of: localising symptoms such as flank pain, a loin mass or haematuria; constitutional upset including weight loss, pyrexia and/or night sweats; or unexplained test results.

Paraneoplastic syndromes are found in around 30% of patients with symptomatic RCC and are caused by secretion of tumour-derived hormones. These syndromes can be associated with polycythaemia (erythropoietin), hypercalcaemia (parathyroid hormone related peptide) or hypertension (renin). Between 25 and 31% of individuals with kidney cancer will have metastatic disease at diagnosis and may present with dyspnoea, persistent cough, haemoptysis, bone pain, pathological fracture or lymphadenopathy.

NICE recommends that patients aged ≥ 45 years with unexplained visible haematuria in the absence of UTI, or visible haematuria which persists or recurs after successful treatment of UTI should be referred urgently for an appointment within two weeks. For the subtler presentations of RCC, basic blood and urine testing, in conjunction with ultrasound, can guide secondary care referral. The range of treatments, both surgical and systemic, is expanding and requires a coordinated approach between primary and secondary care.
For localised disease, particularly when tumour size is < 7 cm, there has been a move towards nephron sparing surgery in the form of partial nephrectomy. However, radical nephrectomy for more advanced RCC as an attempt at curative therapy remains the best option. Patients with advanced or metastatic RCC may be treated with targeted systemic therapy which modulates molecular pathways that typically promote tumour growth, or immunotherapy which triggers an immune response that destroys cancer cells.