**Radiological investigation in acute renal colic**

**Descriptor:**

This audit assesses appropriate imaging investigation in presentation with acute renal colic, as well as the diagnostic yield of CT KUB scans in terms of renal calculi and alternative diagnoses.

**Background:**

CT KUB is the investigation of choice when investigating acute renal colic in adult population (excluding pregnant women), as per iRefer RCR guidance (Ref.1). It also falls in line with NICE guidance for acute renal colic (Ref 2), British Association of Urological Surgeon (BAUS) guidelines for management of acute ureteric colic (Ref 3), and European Association of Urology (EAUS) guidelines on urolithiasis (Ref.4). CT KUB is the most accurate investigation in suspected ureteric colic and a low-radiation-dose (LD) CT technique can be used in most cases (patients with a high BMI (>=30) might not be suitable for low dose CT KUB Ref 10). However, there is still a significant dose involved, and their use should be monitored to ensure that CT KUB’s have a reasonable diagnostic yield and are not being used inappropriately for non-specific abdominal pain. It is also important to make sure that inappropriate repeat exams are not carried out (i.e. if a patient returns the week after initial diagnosis or following treatment such as ESWL – plain x-ray is often sufficient.)

## The Cycle

**The standard:**

1. CT KUB should be used to investigate acute renal colic in all adults >=18 y old (excluding pregnant women) unless the patient is a known recurrent stone former and had a CTKUB in the last 3 months-then USS/KUB x-ray may be sufficient. Ref.1, Ref 3

2. CT KUB should be performed within 24 hours of presentation. Ref. 2

3. According to published studies, CT KUB conducted at regional centres should detect calculi in 44-64% of patients, with alternate diagnoses noted in a further 6-18%. Ref.3-7

4. All suitable patients (BMI < 30) should undergo low dose (LD)\*CT KUB (Ref 10)

\*LD CT is defined as radiation dose/exam of < 3.5mSV (Ref 8)

**Target:**

1. 100%

2. 100%

3. Calculi in at least 44%, alternate diagnoses in at least a further 6% (Ref. 3-7)

4. 100%

## Assess local practice

**Indicators:**

1. % adult patients (excluding pregnant women) presenting with renal colic who were investigated with CT KUB (recurrent stone formers with CT KUB in the last 3 months can be excluded or analysed separately)

2. % CT KUBs performed within 24 hours of request

3. % patients undergoing CT KUB with

a) confirmed calculi

b) alternative diagnosis

c) no radiological diagnosis

Optional:

4. % suitable patients undergoing low dose CT KUB (suitable patients all with BMI < 30) Ref 8

5. Subgroup analysis (age adults over age of 18/young people aged 16-18 and gender M/F (child bearing age/post-menopausal))

**Data items to be collected:**

1. List of patients referred for investigation from A&E/surgical takes with suspected acute renal colic. (How this is obtained will depend on local coding practices.)

2. Date and time of CT KUB request form submission, if performed

3. Date and time of CT KUB scan, if performed

4. Referral information i.e. unilateral loin pain / haematuria/ non-specific abdominal pain

5. Positive findings of CT KUB scan

Optional:

7. Type of CT KUB –low dose (LD)/standard

8. For subgroup analysis- patient age and gender

**Suggested number:**

75 consecutive adult patients admitted with acute renal colic

**Suggestions for change if target not met:**

1. Discussions with fellow radiologists, radiographers and the department manager to identify issues affecting CT scan access and capacity. Adapt clinical practice to ensure rapid patient access to CT KUB. Meeting this time target will require access to CT KUB scans at the weekend.

2. If the diagnostic yield of CT KUB is below the standard e.g. in young female cohort, discuss with A&E and surgical teams the possibility of requesting abdominal USS as a first line investigation in those patients with a lower probability of renal calculi to minimise radiation exposure. Review of diagnostic yield in relation to referral information may highlight referral issues. Emphasise that CT KUB is an inappropriate first line investigation for abdominal pain per se.

**Resources:**

1. Request of list of patients referred for CTKUB from A&E department/General Surgery Department (45 minutes)

2. Review of request forms to ensure referral reason was for renal colic (2 hours)

3. Review of CT KUB scan reports (2 hours)

4. Analysis (2 hours)

**References:**

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