

# Pyelonephritis in medical Same Day Emergency Care – Full Clinical Guideline

Reference no.: CG-ACC/2021/002

#### 1. Introduction

Acute pyelonephritis is an infection of one or both kidneys usually caused by bacteria travelling up from the bladder - the most common causative pathogen is Escherichia coli, which is responsible for 60-80% of uncomplicated infections.

Like any other infection, acute pyelonephritis can result in complications if left untreated. Those include sepsis, renal scarring, abscess formation, preterm labour in pregnancy...

Acute pyelonephritis is a clinical diagnosis and should be based on detailed medical history and clinical examination.

Adjunct investigations to aid diagnosis can be done, and include urinary sampling for culture and sensitivities, and biochemical profile.

A final diagnosis of acute pyelonephritis should be made in people with loin pain and/or fever if a UTI is confirmed by culturing a urinary pathogen from the urine, and other causes of loin pain and/or fever have been excluded.

People with severe symptoms, or signs or symptoms which suggest a more serious illness or condition should be admitted to hospital.

A pilot of outpatient management has briefly been trialled in the Ambulatory Care Centre at the Royal Derby Hospital of the suggested guidelines, which showed promising results.

# 2. Definitions, Keywords

ACC: Ambulatory Care Centre

ED: Emergency department

MAU: Medical Assessment Unit

APN: Acute pyelonephritis

**UTI**: Urinary tract infection

US KUB: Ultrasound of the kidneys, ureters and bladder

STAT: Short term Antibiotic Therapy

**OPAT**: Outpatient Parenteral Antibiotic Therapy

PO: per os

IV: intravenous

IM: intramuscular

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## 3. Aim and Purpose

This is a guideline for assessing and treating patients presenting with pyelonephritis in the ambulatory care setting.

The goal of this guideline is to reduce the number of haemodynamically stable female patients admitted with uncomplicated pyelonephritis via the medical assessment unit.

#### The aims are as follows:

- Promote management with outpatient Short Term Antibiotic Therapy via ACC and reduce the admission load.
- Assess patients in ACC fitting the criteria and aim for discharge on oral antibiotics within 24-72 hours, carrying out appropriate and necessary investigations to guide the treatment and assess suitability towards discharge.
- Avoid unnecessary ultrasound imaging, as per the latest evidence only 10% of ultrasound scans show positive findings, hence not being an effective marker to entirely diagnose or rule out acute pyelonephritis.

#### 4. Guidelines

It is important to reiterate that these guidelines are meant for haemodynamically stable patients streamed to ACC based on the above mentioned criteria.

For complicated UTI, inpatient management or male pyelonephritis, separate guidelines are available on the intranet.

The emphasis on ACC is treatment via STAT.

Below are the 2 flowcharts devised based on recommendations and findings from our project.

The first one is for patients with no penicillin allergy or <u>non-severe</u> <u>penicillin allergy</u> (<u>non-immediate reaction without systemic involvement</u>) (figure 1).

The second one is for patients with <u>confirmed severe penicillin allergy (immediate reaction or non immediate reaction with systemic involvement)</u> (figure 2).

# <u>Pyelonephritis and UTI in female patients with</u> no penicillin allergy or non-severe penicillin allergy

- Appropriate cases streamed to ACC as per the exclusion criteria
- B-HCG test is done to rule out pregnancy and pregnancy-related complications
- Urine dip is done and a urine sample is sent for MC&S

# Day 1: Ceftriaxone 2g IV/IM

- Consider stat bag of fluids, anti-pyrexial and antiemetics if indicated
- Initial inflammatory/infectious profile (UE, CRP, FBC)
- If clinically and biochemically indicated, can be considered for discharge on oral antibiotics



# Day 2: Ceftriaxone 2g IM/IV

- Assess clinical response, check obs (EWS) and for any new or worsening of symptoms
- Chase up the report of urine MC&S
- Consider discharging the patient on oral antibiotics if clinically stable



## Day 3: Ceftriaxone 2g IM/IV

- Repeat bloods (UE, CRP, FBC)
- Assess clinical response, observations and worsening/new symptoms
- Discharge home on oral antibiotics if clinically indicated

#### Monitor for:

- Worsening of clinical/biochemical profile
- Any signs of systemic involvement/sepsis

# If present -> ADMIT

#### CONSIDER US KUB if:

- Worsening clinical/biochemical profile
- Persistent fever > 72 hours

# AND any of the following

- Immunocompromised/ diabetes mellitus
- Personal or family history of structural abnormalities of kidneys/urinary tract
- Recurrent complicated UTIs

## Antibiotic therapy PO on discharge

## Cefalexin 500mg-1g TDS

- Total duration: 7 to 10 days (PO/parenteral combined)
- In unlikely case that patient needs extended course, contact OPAT+/- consider admission after discussion with microbiology

Figure 1 : Guidelines for management of pyelonephritis and UTI in female patients with no penicillin allergy or non-severe penicillin allergy (non-immediate reaction without systemic involvement)

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# Pyelonephritis and UTI in female patients with

severe penicillin allergy

- Appropriate cases streamed to ACC as per the exclusion criteria
- B-HCG test is done to rule out pregnancy and pregnancy-related complications
- Urine dip is done and a urine sample is sent for MC&S

### Day 1: Levofloxacin 500mg IV

- Consider stat bag of fluids, anti-pyrexial and antiemetics if indicated
- Initial inflammatory/infectious profile (UE, CRP, FBC)
- If clinically and biochemically indicated, can be considered for discharge on oral antibiotics



### Day 2: Levofloxacin 500mg PO

- Assess clinical response, check obs (EWS) and for any new or worsening of symptoms
- Chase up the report of urine MC&S
- Consider discharging the patient on oral antibiotics if clinically stable



## Day 3: Levofloxacin 500mg PO

- Repeat bloods (UE, CRP, FBC)
- Assess clinical response, observations and worsening/new symptoms
- Discharge home on oral antibiotics if clinically indicated

#### Monitor for:

- Worsening of clinical/biochemical profile
- Any signs of systemic involvement/sepsis

If present -> ADMIT

#### CONSIDER US KUB if:

- Worsening clinical/biochemical profile
- Persistent fever >72 hours

### AND any of the following

- Immunocompromised/ diabetes mellitus
- Personal or family history of structural abnormalities of kidneys/urinary tract
- Recurrent complicated UTIs

#### Antibiotic therapy PO on discharge

# Ciprofloxacin 500mg BD

- Total duration: 7 days (PO/parenteral combined)
- In unlikely case that patient needs extended course, contact OPAT +/- consider admission after discussion with microbiology

Figure 2 : Guidelines for management of pyelonephritis and UTI in female patients with confirmed severe penicillin allergy (immediate reaction or non immediate reaction with systemic involvement)

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### 5. References

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### 6. Documentation controls

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