



Clinical Spectrum of Acute Pyelonephritis in a Tertiary Care Centre- A Retrospective Study

Authors

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Introduction

There are approximately 250,000 cases of acute pyelonephritis each year, resulting in more than 100,000 hospitalizations¹. Acute pyelonephritis is an infection of the upper urinary tract, specifically the renal parenchyma and renal pelvis.

It is considered uncomplicated if the infection is caused by a typical pathogen in an immunocompetent patient who has normal urinary tract anatomy and renal function. It is critical to determine whether the patient has an uncomplicated or complicated UTI because significant abnormalities have been found in 16% of patients with acute pyelonephritis². Misdiagnosis can lead to sepsis, renal abscesses, and chronic pyelonephritis that may cause secondary hypertension and renal failure³.

The clinical spectrum ranges from gram negative sepsis to cystitis with mild flank. Abrupt onset of chills, fever (100.3° F or greater), and unilateral or bilateral flank or costovertebral angle pain and/or tenderness³. These so-called upper tract signs are often accompanied by dysuria, increased urinary frequency, and urgency.

Most renal parenchymal infections occur secondary to bacterial ascent through the urethra and urinary bladder. In men, prostatitis and

prostatic hypertrophy causing urethral obstruction predispose to bacteriuria.

Hematogenous acute pyelonephritis occurs most often in debilitated, chronically ill patients and those receiving immunosuppressive therapy.

Aim of the Study

To analyse the clinical spectrum of Acute pyelonephritis in a tertiary care centre and need for surgical management.

Patients and Methods

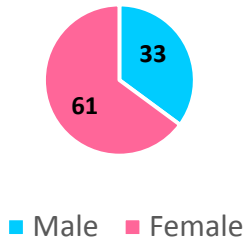
- Retrospective study
- January 2017 to April 2018
- 101 patients diagnosed with acute pyelonephritis.
- In these 94 cases have all the required parameters for the study.

Parameters Analysed

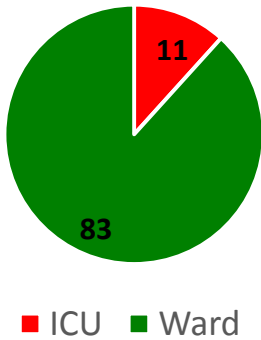
- Hemoglobin
- Sr.creatinine and electrolytes,
- Blood sugar at admission and HbA1c,
- Urine analysis & culture,
- CT scan
- Any surgical intervention done

Results

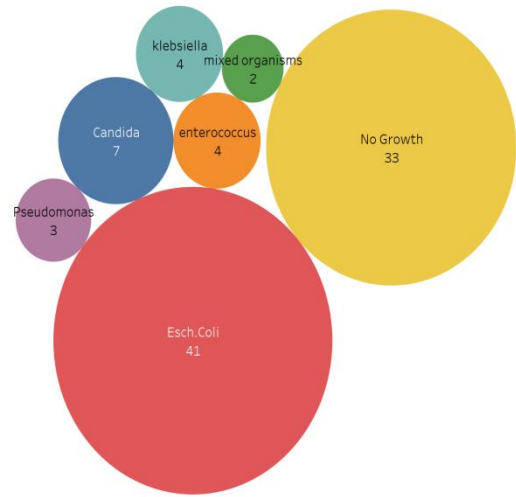
Male to Female



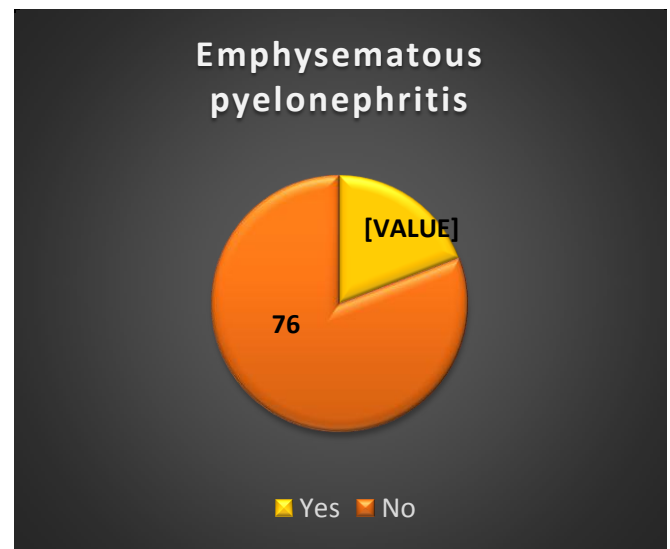
ICU vs Ward



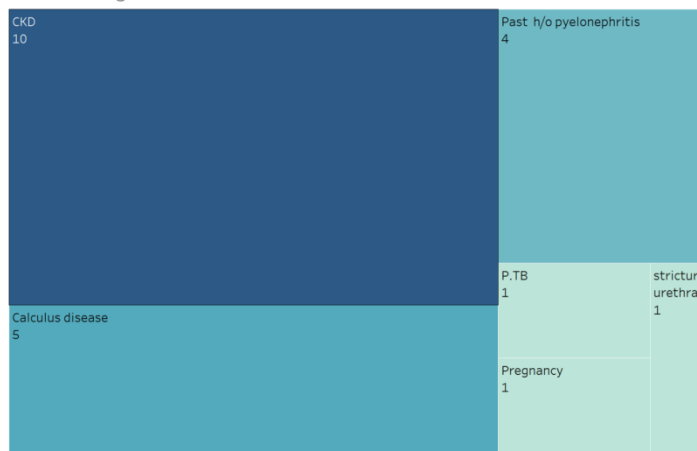
Bacterial Spectrum



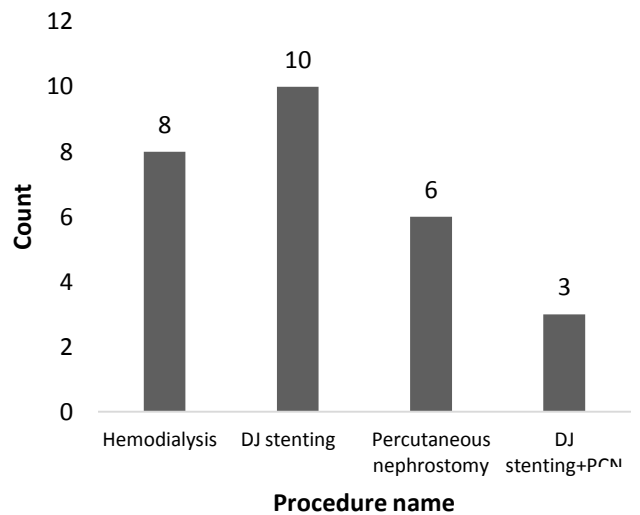
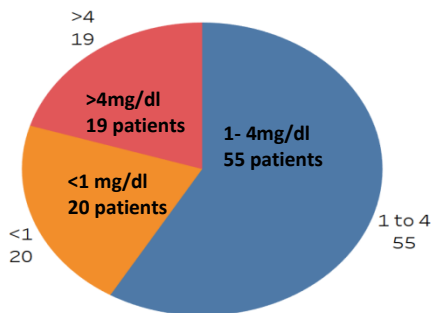
Emphysematous pyelonephritis



Pre-Existing Illness



Creatinine



Discussion

In more than 80 percent of cases of acute pyelonephritis, the etiologic agent is *Escherichia coli*⁴. Patients who has diabetes mellitus tend to

have infections caused by Klebsiella, Enterobacter, Clostridium, or Candida.

Diabetes causes increased risk of developing emphysematous pyelonephritis and papillary necrosis leading to shock and renal failure⁵.

Ultrasonography and CT show renal enlargement, hypoechoic or attenuated parenchyma, and a compressed collecting system. When parenchymal destruction becomes pronounced, a more disorganized parenchyma and abscess formation associated with complicated renal and perirenal infections may be identified. Any substantial obstruction must be relieved expediently by the safest and simplest means.

Emphysematous pyelonephritis (EPN) is an acute severe necrotizing infection of the renal parenchyma and its surrounding tissues that results in the presence of gas in the renal parenchyma, collecting system or perinephric tissue. The treatment of EPN until the late 1980s has been emergency nephrectomy and/or open surgical drainage together with antibiotic therapy, resulting in a reported mortality rate of 40–50%⁶. Significant advances in the percutaneous catheters used made it possible to have PCD as a treatment option for EPN, which was first shown by Hudson *et al*⁷.

The abscess, which is technically easier to access and would significantly reduce the pressure on the viable renal tissue, should be targeted first with PCD. During the last decade there has been a gradual shift toward a nephron-sparing approach with PCD, with or without elective nephrectomy at a later stage.

The treatment strategies include Medical management (MM) alone, PCD plus MM, MM plus emergency nephrectomy, and PCD plus MM plus emergency nephrectomy.

Conclusion

- The prevalence of acute pyelonephritis and EPN were increased in females compared to males (61 vs 33) and (10 vs 3).
- Bilateral involvement is high in females.

- Surgical intervention plays a significant role in complicated acute pyelonephritis in decreasing morbidity and hospital stay.
- Multidisciplinary approach is needed with the support of nephrologist, diabetologist and intensivist.

References

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