

# CLINICAL PROFILE AND IMMEDIATE MANAGEMENT OUTCOME OF EMPHYSEMATOUS AND NON-EMPHYSEMATOUS PYELONEPHRITIS IN PATIENTS WITH DIABETES MELLITUS

Tabassum Samad, Wasim Md Mohosinul Haque, Muhammad Abdur Rahim, Shudhanshu Kumar Saha, Mehruba Alam Ananna, Tufayel Ahmed Chowdhury, Sarwar Iqbal

Department of Nephrology, Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM) General Hospital, Dhaka, Bangladesh

## INTRODUCTION AND AIMS

Non-emphysematous/acute pyelonephritis (APN) and emphysematous pyelonephritis (EPN) are potentially organ and/ or life threatening infection. Up to 90% of EPN occur in diabetic patients. The clinical course of EPN can be severe and life threatening if not recognized and treat promptly. Therefore it will be of value if EPN can be distinguished from APN on presentation. As EPN is a rare condition, knowledge about its demographic also has importance.

## METHODS

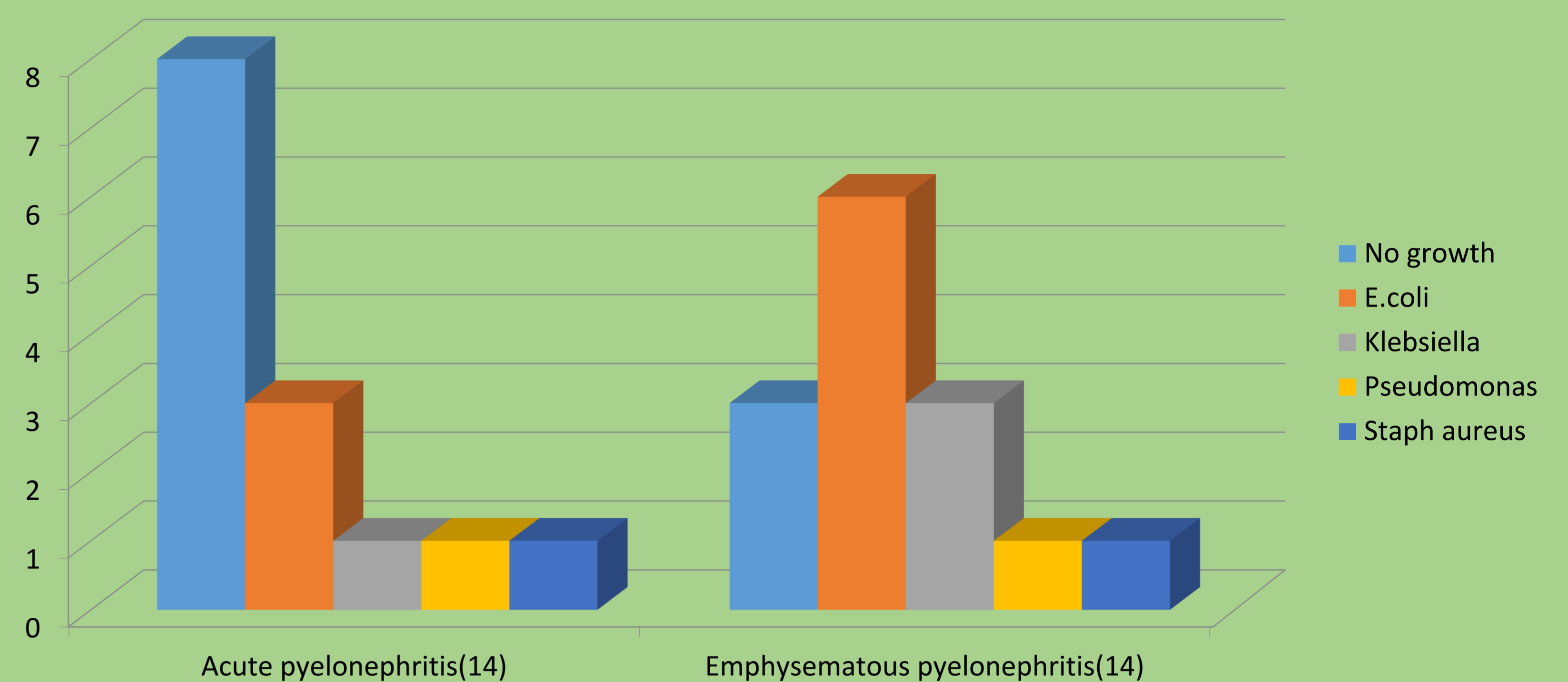
This retrospective study was done in Department of Nephrology, Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM) General Hospital, Dhaka, Bangladesh. Hospital records of all patients with EPN and equal number of APN patients who were admitted in our hospital from January 2011 to July 2016 were included in the study. Data were analyzed for demographics, clinical picture, investigation profile and in-hospital outcome.

## RESULTS

Total number of patients was 28, having equal number of APN and EPN. Mean age was 51 ±17 years in APN and 48±12 years in EPN group. Female was more affected and 65% were in their reproductive age. They had poor glycemic control (HbA1C - 11.28±3.3%) and more than 50% of patients had diabetes mellitus (DM) for more than ten years. Fever was the commonest presenting complaint in both groups. Diffuse abdominal pain was more in EPN (p<.05). Only one patient of EPN presented with pneumaturia (Table I). E.coli was the commonest organism found in urine culture (Figure 1). Hyponatremia was present in 64% cases. Mean Na<sup>+</sup> was 128 ± 6 mmol/L. Acute kidney injury (AKI) was equal (86% each) and its incidence was more in patients having longer duration of DM (Table II). Ultrasonogram (USG) was sensitive for diagnosing APN but not for EPN. Computed tomography (CT scan) confirmed EPN (100%) (Table III) and there were 9 class 2, 3 class 3A and 2 Class 3B EPN<sup>1</sup>. All cases of APN and 50% of EPN cases were managed with medical treatment only. Rest of EPN cases required surgical intervention (Figure 2). There were no statistical significant relation between nephrectomy and other clinical or radiological parameters. There was no significant difference in renal outcome at discharge. Survival rate was 100% in both group until discharge.

**Table I:** Clinical features of patients with pyelonephritis

Clinical-features	APN(NO:14)	EPN(NO:14)	p-value
Fever	12	13	>0.05
Loin-pain	7	4	>0.05
Abdominal-pain	1	7	<0.05
Vomiting	6	3	>0.05
Altered-consciousness	0	3	>0.05
Pnematuria	0	1	>0.05
Loose-motion	1	2	>0.05
Shock	0	2	>0.05
Renal-angle-tenderness	12	8	>0.05
Ballotable-kidney	1	3	>0.05



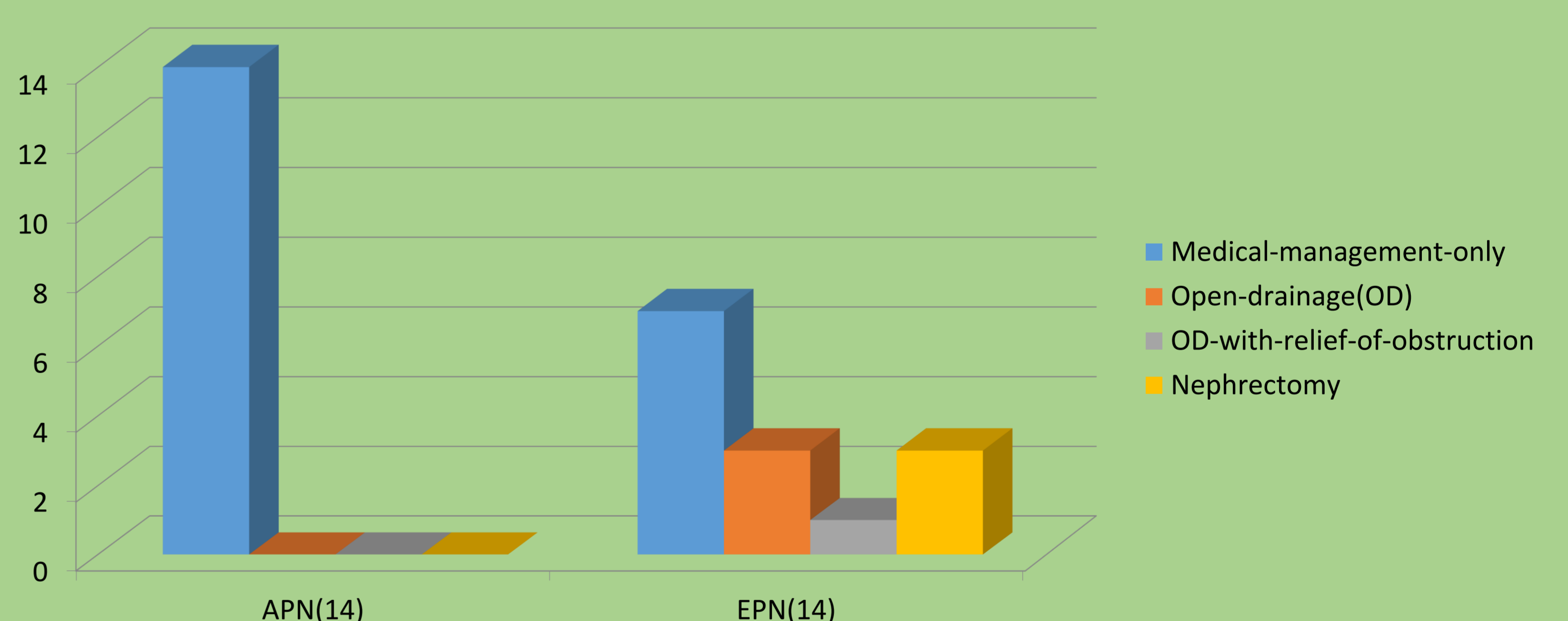
**Figure 1:** Pattern of Organism in Urine C/S

**Table II:** Association of AKI with Duration of DM

AKI (NO=24)	Duration of DM		p- Value
	< 5 years (NO=6)	> 5 years (NO=22)	
Yes	3	21	< 0.05
No	3	1	

**Table III:** Imaging modality in EPN with their percentage of detection

Imaging Technique	Done in	EPN detected	P-value
USG of abdomen	14	10	<0.05
CT scan of abdomen	14	14	



**Figure 2:** Management of non emphysematous and emphysematous pyelonephritis

## Conclusions

Patients with long duration and poor control of DM and female gender were more prone to develop PN. Other than fever, diffuse abdominal pain was common in EPN. Incidence of AKI was more in patients with longer duration of DM. USG for APN and CT scan for EPN were the investigation of choice. All patients survived in both groups. A study with larger number of patients is recommended.

## Key words

Acute pyelonephritis, emphysematous pyelonephritis, diabetes mellitus

## References

1. Huang JJ, Tseng CC. Emphysematous pyelonephritis, clinicroadiological classification, management, prognosis and pathogenesis. Arch Intern Med 2000;160:797-805.

**Address of correspondence:** Dr Tabassum Samad. Assistant Professor, Department of Nephrology, BIRDEM General Hospital, Dhaka, Bangladesh. Email: titlysamad@gmail.com.