

Spectrum of Renal Involvement in Patients of Obstetrical and Gynaecological Disorders Presenting with Renal Abnormalities

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ABSTRACT

BACKGROUND: The occurrence and consequences of renal disorders in patients with obstetrical and gynaecological problems is varied. Patients may present as acute kidney injury (AKI), rapidly progressive glomerulonephritis (RPGN), chronic kidney disease (CKD) or nephrotic syndrome. So this study was conducted to see the spectrum of renal involvement in patients of obstetrical and gynaecological disorders associated with renal abnormalities at our centre.

METHODS: The present study was conducted in the Department of Nephrology, Gauhati Medical College and Hospital, Guwahati, Assam, India over a period of 5 years (2011 – 2015). A total of 60 patients were included in the study.

RESULTS: Of the 60 patients, 32 (53.3%) had AKI- mostly pregnancy related, 11(18.3%) patients had obstructive uropathy, 4 (6.6%) patients were diagnosed with CKD in the antenatal period, 3 (5%) patients each of RPGN and nephrotic syndrome, 5 (8.3%) patients were diagnosed with lupus nephritis and 2 (3.3%) patients were diagnosed with genitourinary tuberculosis. Renal biopsy was done in 14 patients and showed lupus nephritis in 5 patients, cortical necrosis in 2 patients, and 1 patients each with acute tubular necrosis (ATN), minimal change disease (MCD), IgA nephropathy (IgAN), Crescentic IgAN, Pauci immune glomerulonephritis, Diffuse proliferative glomerulonephritis (DPGN) and Membranous glomerulonephritis (MGN).

CONCLUSION: Pregnancy related AKI is quite common in this part of the country. If not properly treated, may progress to cortical necrosis. Carcinoma cervix leading to obstructive uropathy and chronic kidney disease is another condition encountered. A prompt diagnosis and appropriate treatment is most essential to prevent morbidity and mortality.

KEYWORDS: Acute kidney injury, Chronic kidney disease, Pregnancy related acute kidney injury, Renal cortical necrosis, Rapidly progressive glomerulonephritis.

INTRODUCTION

The occurrence and consequences of renal disorders in patients with obstetrical and gynecological problems are varied. Renal disorders in this group of patients may present as acute kidney injury, rapidly progressive glomerulonephritis, chronic kidney disease or nephrotic syndrome.

Obstetric acute kidney injury can occur at any stage of pregnancy and the main etiologies in this group requiring dialysis were pregnancy induced hypertension and thrombotic microangiopathies¹. Though the incidence of acute kidney injury in pregnancy in the developed world has fallen dramatically over the past 40

years, the picture is not the same in the developing world. Elderly patients mostly present as obstructive uropathy. A comprehensive understanding of the clinical spectrum of a disease is needed to identify potential areas of intervention. There is limited data in this group of patients from India; so this study was designed to see the spectrum of renal involvement in these patients.

AIM OF THE STUDY

To see the spectrum of renal involvement in patients of obstetrical and gynaecological disorders presenting with renal abnormalities.

MATERIALS AND METHODS

The present study is a cross sectional study conducted in the Department of Nephrology, Gauhati Medical College and Hospital, Guwahati, Assam, India for a total duration of 5 years (January 2011 – December 2015). 60 patients were included of which 36 were pregnant and 24 were non pregnant. They were subjected thorough clinical examination and necessary investigations like urine examination, renal function test, USG whole abdomen and special investigations like ANA (anti-nuclear antibody), dsDNA (anti double stranded DNA), ANCA (anti neutrophilic cytoplasmic antibody, complement. Renal biopsy was done in select cases.

Inclusion Criteria

Pregnant patients or female patients presenting with gynaecological problems of any age with renal dysfunction, proteinuria or other features of renal involvement were included. These patients were referred to our department from their respective parent departments.

Exclusion Criteria

- Patients with known renal disease
- Patients with pre eclampsia / eclampsia
- Patients with h/o hypertension or diabetes mellitus

RESULTS

The present study is a cross sectional study conducted in the Department of Nephrology, Gauhati Medical College and Hospital, Guwahati, Assam, India for a total duration of 5 years (January 2011 – December 2015). 60

patients were included of which 36 were pregnant and 24 were non pregnant. The highest numbers of patients are in the age group 21- 30 years, and the mean age was 32 years.

Regarding the clinical presentation, pedal edema was present in 27 patients, oliguria in 36 patients, respiratory distress in 39 patients, hypertension (HTN) in 18 patients, hematuria in 16 patients, retention of urine in 10 patients, pain abdomen in 16 patients, joint pain in 12 patients, skin rash in 4 patients and lower urinary tract symptoms (LUTS) in 8 patients. Albuminuria was present in 46 patients, active urinary sediments in 8 patients, pyuria in 28 patients and deranged renal function test (RFT) in 53 patients. In USG, bulky kidneys was seen in 37 patients, normal kidneys in 12 patients, small kidneys in 4 patients, hydronephrosis in 11 patients and calculi in 5 patients. The presenting features and lab parameters of the patients are shown in table 1. Renal biopsy was done in 14 patients. The biopsy findings are shown in table 2. Regarding the type of renal involvement, 32 (53.3%) had AKI- mostly pregnancy related, 11(18.3%) patients had obstructive uropathy, 4 (6.6%) patients were diagnosed with CKD in the antenatal period, 3(5%) patients each of RPGN and nephrotic syndrome, 5 (8.3%) patients were diagnosed with systemic lupus erythematosus with lupus nephritis and 2 (3.3%) patients were found to have genitourinary tuberculosis. The spectrum of renal involvement in pregnant patients and non-pregnant patients separately are shown in table 3 and table 4 respectively.

Table 1: Presenting Features and lab parameters suggestive of renal involvement

PRESENTING FEATURES	NO OF PATIENTS	%
OEDEMA	27	45 %
HTN	18	30 %
OLIGURIA	36	60 %
HEMATURIA	16	26.7 %
BREATHING DIFFICULTY	39	65 %
RETENTION OF URINE	10	16.7 %
PAIN ABDOMEN	16	26.7 %
JOINT PAIN	12	20 %
SKIN RASH / LESION	4	6.7 %
LUTS	8	13.3%
ALBUMINURIA	46	76.7 %
ACTIVE URINARY SEDIMENT	8	13.3%
PUS CELL IN URINE	28	46.7%
DERANGED RFT	53	88.3%
ANA , dsDNA	5	8.3%
ANCA	1	1.7%
↓ COMPLEMENT	6	10%
↑ Anti Streptolysin O (ASO)	1	1.7%
SERUM ELECTROPHORESIS FOR M BAND	0	0
MONTOUX TEST	1	1.7%
URINE PCR FOR MTB	2	3.3%

Table 2: Showing renal biopsy findings

DIAGNOSIS	NO OF PATIENTS	Percentage (%)
ATN	1	1.67
CORTICAL NECROSIS	2	3.33
MCD	1	1.67
IgAN	1	1.67
CRESCENTRIC IgAN	1	1.67
PAUCI IMMUNE GN	1	1.67
DPGN	1	1.67
MGN	1	1.67
SLE LN	5	8.33
CLASS II	1	1.67
CLASS IV	2	3.33
CLASS III + IV	1	1.67
CLASS V	1	1.67

Table 3: Spectrum of Renal Involvement in Pregnant population

DIAGNOSIS	NO OF PATIENTS (N = 36)	%
1) AKI	29	80.5 %
SEPSIS (PUERPERAL + SEPTIC ABORTION)	15	41.7 %
PPH	8	22.2 %
PYELONEPHRITIS	3	8.3 %
APH (ABORTION)	2	5.5%
ACUTE FATTY LIVER OF PREGNANCY	1	2.8%
2) CKD	4	11.1 %
CIN	3	8.33 %
CGN	1	2.78 %
3) SLE , LN (CLASS II)	1	2.78 %
4) INS (MCD)	1	2.78 %
5) RPGN (CRESCENTRIC IgAN)	1	2.78 %

*PPH= Postpartum haemorrhage, APH= Antepartum haemorrhage, INS= Idiopathic nephritic syndrome

Table 4: Spectrum of Renal Involvement in Pregnant population

DIAGNOSIS	NO OF PATIENTS (N = 24)	%
1) OBSTRUCTIVE UROPATHY	11	45.8 %
• Ca CERVIX	7	29.2 %
• UTERINE PROLAPSE	4	16.7 %
2) AKI (UROSEPSIS)	3	12.5 %
3) SLE ,LN	4	16.7 %
• CLASS IV	2	8.33 %
• CLASS III + IV	1	4.17%
• CLASS V	1	4.17 %
4) RPGN	2	8.33 %
• PAUCI IMMUNE	1	4.17 %
• PIGN	1	4.17%
5) INS	2	8.33 %
• MGN	1	4.17 %
• Ig AN	1	4.17 %
6) GU TB	2	8.33 %

*PIGN= Post infectious glomerulonephritis, GUTB= Genitourinary tuberculosis

2 patients who had acute kidney injury 2° to PPH were found to have renal cortical necrosis (RCN). 5 patients

of acute kidney injury & 2 of Ca cervix expired during study period.

DISCUSSION

In the present study, the spectrum of renal involvement of female patients presenting with gynecological and obstetrical problems was evaluated. So, both pregnant and non-pregnant population was taken into account. Till date there is no study which has studied the entire spectrum of renal involvement in both pregnant and non-pregnant population together.

Pregnant population

Most of the previous studies from various parts of the world in pregnant patients were done in relation to acute kidney injury. Septic abortion which has virtually disappeared from developed countries continues to be a major cause of pregnancy related acute kidney injury (PRAKI) in our society. In the present study, 15 cases (41.7%) of AKI in the pregnant population were due to sepsis, 8 (22.2 %) due to puerperal sepsis and 7 (19.4%) due to septic abortion. The next common cause was PPH (22.2%) followed by pyelonephritis (8.3%), antepartum hemorrhage (5.5%) and acute fatty liver of pregnancy (2.8%).

The study by Najjar MS et al² have reported that septic abortion was the most common cause of PRAKI (50%), followed by APH (15%), toxemia of pregnancy (15%), acute gastroenteritis (7.5%) and PPH (5%). Mortality was seen in 20% of patients. Another study by Prasad G et al³ have stated that puerperal sepsis was the predominant etiology (33.37%) followed by preeclampsia/ eclampsia (25.6%), post-partum hemorrhage (12.8%), glomerular diseases (10.41%), abruption placenta (4.16%). Hasan I et al⁴ have reported that pregnancy related acute kidney injury was associated with poor outcome. APH and PPH were the most common causes.

The incidence of obstetrical related acute kidney injury has reduced in recent years. However renal cortical necrosis remains a dreaded complication of obstetrical related AKI. According to the study by Ali A et al⁵ oliguria / anuria on admission and dialysis dependency are associated with renal cortical necrosis. In the present study, renal cortical necrosis was seen in 2 patients (3.33%) and both the patients had presented as acute kidney injury during pregnancy. Prakash J et al⁶ found the incidence of RCN in obstetric AKI to be 15.2 %.

Non pregnant population

As life expectancy increases, more elderly patients are surviving longer with acute and chronic diseases. The range of renal diseases in the elderly patients differs from that in younger ones.

In the present study, in the non-pregnant population, the most common abnormality was obstructive uropathy (45.8%) due to Carcinoma cervix (29.2%) and uterine prolapse (16.7%). It was mostly seen in elderly patients. AKI was seen in 12.5% all due to urosepsis. 4 patients (16.7 %) were diagnosed as lupus nephritis and they

presented with menstrual irregularities and 2^o infertility. Among glomerular diseases there was 1 patient each of pauci immune glomerulonephritis, post infectious glomerulonephritis, membranous glomerulonephritis and IgA nephropathy. Zhu P et al⁷ had stated that the most common primary glomerular disease was idiopathic membranous nephropathy followed by IgA nephropathy. ANCA associated vasculitis was the leading secondary glomerular disease, followed by HBV related glomerulonephritis and amyloidosis.

Genitourinary tuberculosis was diagnosed in 2 (8.33%) patients. They presented with 2^o infertility and menstrual irregularities in the gynecology department. The most common symptoms of genitourinary TB according to Singh J P et al⁸ was irritative voiding symptoms and hematuria.

CONCLUSION

In the present study a comprehensive attempt to summarise the types of renal involvement in both pregnant and non-pregnant patients was made. However acute kidney injury was quite common in the pregnant females, with septic abortion and puerperal sepsis contributing to a significant number of cases. Hence, there is a need to halt the practice of illegal abortions and improve antenatal and also post natal care to reduce morbidity and mortality.

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