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Incidence of pregnancy related acute kidney injury (praki) a study done in three tertiary care centres

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Abstract

praki =pregnancy related acute kidney injury is a major cause of morbidity and mortality and poor outcome in developing countries, most common culprit in indian scenario was septic abortion in past but now preeclampsia/eclampsia and infection related aki are major culprit. we tried to find out incidence of praki in jhansi,gwalior and bhopal region and a case prospective study was performed , for duration of one year, patients have complaints related to urogenital systems were enrolled for study and further evaluated, we also enrolled patients who were admitted in our wards for renal pathologies and complications related to kidney.results shows incidence of 5.66%.

Keywords: pregnancy, kidney, acute kidney injury

1. Introduction

Pregnancy related acute kidney injury is a life threatening condition and is rarely present in developed world due to good health care accessibility and better health care services and occurs one in 20000 pregnancies ¹

while it is present in higher rates in developing countries and it is a medical condition complicating upto 20% pregnancies ^{2,3}

in india rate of pregnancy related AKI complicate the pregnancy in about 5% pregnancies. ^{4,5} the most common cause in early pregnancy is septic abortion , and toxemia of pregnancy, hemorrhage, and ischemic , acute tubular necrosis in late pregnancy ^{1,6}

Other causes includes acute fatty liver, HELLP Syndrome in the third trimester of pregnancy, and puerperal sepsis and thrombotic microangiopathy in the postpartum period ^{4,6}

we presents here our experience with pregnancy related aki in three tertiary care centres situated in jhansi (uttar pradesh), gwalior and bhopal (madhya pradesh) as these centres covers major public health burden so this data may be reflection of praki in mp and up.

Aims and Objective to study the incidence and nature of renal diseases in pregnant womens and impact of praki on maternal health and pregnancy outcome.

Material and Methods -The Study Was Carried Out At M.L.B. Medical College, Jhansi, Grmc Gwalior And People Medical College Bhopal From June 2013 To May 2014. The Requisite Clearance Was Obtained From The Ethical Committee As Per Protocol. This Study Was Observed By A Nephrologist And Team Of Physicians.We Screened 371 Pregnant Female In 3 Tertiary Care Centre, For Abnormal Renal Function And Abnormal Urinary Abnormalities. And Those Having Abnormal Renal Function And Abnormal Urinary Abnormalities Were Included In Study Group And Followed For Maternal And Perinatal Outcome.

Sources: OPDS, INDOORS, AND ICUS OF NEPHROLOGY AND OBS. & GYNAE DEPARTMENT.

Criteria of Selection We include all pregnant women with – Abnormal urinary abnormalities. Abnormal renal function, Doubling of creatinine over 24 hrs.

Criteria of Exclusion: Known case of chronic kidney disease

Investigations Complete blood count, Urine routine/microscopy. Blood pressure, Lipid profile. S.creatinine. LFT

Specific Investigations

Creatinine clearance, Serum uric acid, Blood urea nitrogen (BUN), Microalbuminuria, S.Na+/K+, USG abdomen and KUB, Blood urea, 24 hr urinary protein, Renal biopsy if required

All patients were treated in line with current protocols for management of their general clinical condition and specific etiological diagnosis.

Results-

Table 1: Distribution of Pregnant Women as Per Age Distribution

Age of Patient	Number	Pregnancies With Renal Pathology
20-30	273(73.58%)	24(6.47%)
30-40	84(22.64)	32(8.62%)
>40 Years	14(3.77%)	03(0.81%)
Total	371(100%)	59(15.90%)

p=0.0001, df= 2

Table 2: Distribution of Pregnant Women as Per Number of Deliveries

No Of Delivery	Number	Renal Abnormalities	P Value
Primigravida	146	24(16.44%)	0.0001
Multigravida	225	35(15.55%)	0.0001
Total	371	59	0.0001

Table 3: Showing Etiology of Renal Abnormalities in Pregnancy

Etiology	Number Of Pregnancies
Preeclampsia And Eclampsia Including Hellp Syndrome	22(5.92%)
Arf With Septicemia	10(2.69%)
Aymptomatic Bactiurea	9(2.42)
Uncomplicated Uti	6(1.61%)
Uti With Arf	4(1.07%)
Pyelonephritis	1(0.27%)
Dic	2(0.54%)
Nephrolithiasis	3(0.81%)
Obst. Uropathy	2(0.54%)
Total	59(15.90%)

p=0.0001, df=8

Table 4: Showing Incidence of Arf in Pregnancy (N=371)

Patients With Arf (P=0.042)	21(5.66%)
Patients Without Arf ,But Renal Pathology (P=0.038)	38(10.24%)
Total Patients With Renal Abnormalities (P=0.0001)	59(15.90%)

Table 5: Showing Outcome of Pregnancy with Arf

Total Number Of Pregnancies With Aki	Pregnancies Who Recovers Completely	Pregnancy Goes Into Ckd	Pregnant Women Who Got Dies
21(5.66%)	17(80.95%) P=0.05	02(09.52%) P=0.006	02(09.52%) P=0.006

Table 6: Showing Distribution of Pregnancies with Aki and Perinatal Outcome (N=59)

	No Of Live Births	No Of Iuds And Perinatal Deaths	P Value
Pregnancies With Aki (N=21)	17(80.95%)	04(19.05%)	0.05
Pregnancies Without Aki (N=38)	37(97.37%)	01(2.63%)	0.0001
Total (N=59)	54(91.52%)	05(08.47%)	0.0001

Table 7: Comparative frequency of PRAKI reported in India.

Praki as Per Author	Number of Patients	Percentage
Chugh (1987) ⁴	1862	14.5
Prakash Et Al (1995) ⁸	59	13.9
Rani Et Al (2002) ⁷	82	12.2
Present Study	59	5.66

AKI - Acute KIDNEY INJURY. PRAKI - Pregnancy related acute KIDNEY INJURY

In our Study We Included Total Of 371 Pregnant Women Visiting Our Facility For Routine ANC Checkup, Who Got Admitted In Nephrology And Obstetric Wards For Complications Related To Renal Pathology. Total of 59 (15.90%) Pregnant Women Were Found To Be Affected With Renal Ailments. Maximum Patients Were Of Age-Group 30-40 Years, Followed By 20-30 Years Of Age-Group. (P=0.0001, Df=1)(Table 1) Maximum Patients Were Multigravida 35, But Primigravida Were Affected By Renal Ailments More When Compared Inrelation With Percentage (16.44% Vs 15.55%) (Table 2) Preeclampsia and Eclampsia Was Major Pathology (05.92%) In Pregnant Women , Followed By ARF With Sepsis (2.69%)(Table 3) Total Of 5.66 % Women Suffer Aki (P=0.042,Df=1),While 10.24 % Women Were Having Renal Diseases Not Complicated By Aki (P=0.038,Df=1), While Total Of 15.90% Were Affected By Renal Pathology(P=0.0001,Df=1)(Table 4) Out Of Total 21 Pregnant Patients With AKI , 80.95% Recovers Completely, While 09.52% Patients Goes Into CKD And Same Percentage Of Patients Died. (Table 5) In Our Study We Found Out That Pregnancy Complicated By AKI Causes Unfavourable Outcome For Foetus,Total Of 19.05% Pregnancies Were Resulted In IUDS And Perinatal Deaths Vs 2.63% Without AKI.(Table 6)

Discussion

Renal Diseases Are Common In Pregnancy as Per Our Study It Ranges About 15 %. Though PRAKI accounted for 17 to 43% of cases of ARF in the 1960's, it now accounts for less than 10% in most of the countries including India.^{1,3} In our study, it accounted for 5.66%. The declining trend of PRAKI is attributed to the legalization of termination of pregnancies and to better antenatal and postnatal care ^{1,4,7}. IN OUR STUDY Prigravidas Appear To Be More Affected Than Multigravidas. Most Common Pathology Complicating Pregnancy Appears To Be Preeclampsia And Eclampsia, Followd By Septicemia Associated AKI. **And PRAKI Was Associated with Significant CKD and Mortality in our study.** PRAKI leads to INTRAUTERINE DEATHS And Perinatal Mortalities. So PRAKI Should Be Diagnosed Early And Treated Promptly For Better Outcome.

Conclusion and Take Home Message-

Better Helath Care Services And Legalization Of Abortion Reduced The Incidence Of Septic Abortion And So Praki, And Women With Pregnancy Should Go For Routine ANC Checkup And Get Their Renal Function Tested In Every Trimester With Blood Pressure Monitoring So Preeclampsia Could Be Treated At Earlier Stages And Pregnancy Comes Out As A Happy Moment For Everyone.

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