



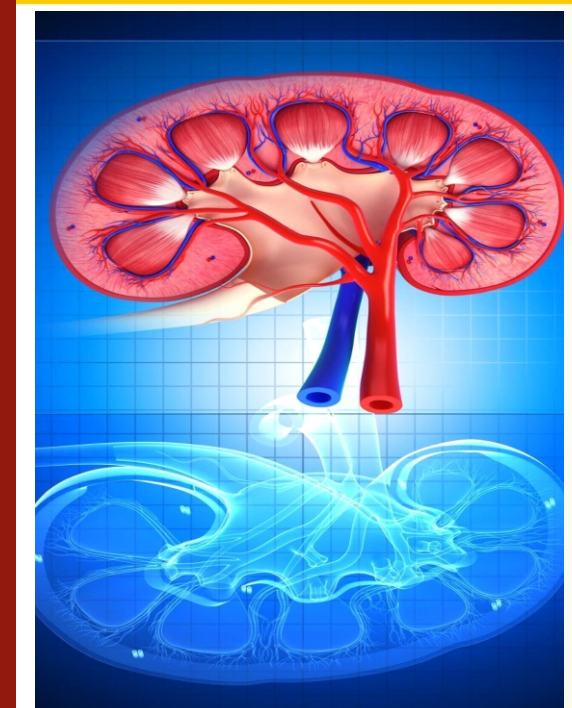
Acute Kidney injury in obstetrics : Hospital based cohort study



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INTRODUCTION



- Acute kidney injury (AKI) is a major unsolved public health-care problem & is a significant contributor to the overall burden of AKI in young women.
- The important risk factors for obstetric AKI are Pre-eclampsia(PE), Sepsis, Hemorrhage and AFLP.
- In developed countries incidence varies from 1 to 2.8, whereas in developing countries it is 4.2-15%
- In India, PRAKI occurs in 1 in 50 pregnancies and represents 20% of all cases of AKI
- Even mild AKI is associated with future risk for Chronic Kidney Disease (CKD), hypertension, cardiovascular diseases and even death.

AIMS AND OBJECTIVES

- To find out the incidence of acute kidney Injury in a tertiary care centre in Northern India
- To find out the risk factors associated with acute kidney injury.
- To find out the maternal outcome in patients acute kidney injury .

MATERIAL AND METHOD

- Setting-** Hospital based observational study in Department of Obstetrics and Gynaecology in collaboration with Department of Medicine, KGMU, Lucknow, India
- Study approved by institutional ethics committee.
- Duration-** one year
- Patients with obsteric AKI were followed for a period of 3 months

Inclusion Criteria:

- Obstetric Cases fulfilling criteria of Acute Kidney Injury as per KDIGO guidelines 2012
- Written Consent to participate in the study

Exclusion Criteria:

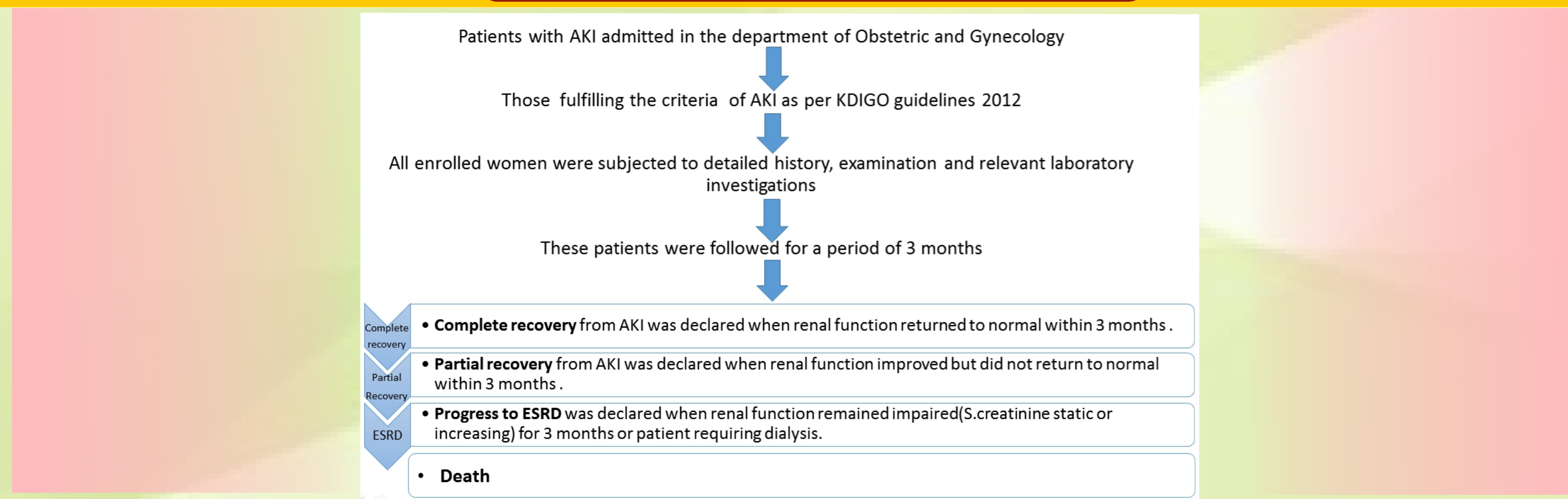
- Patients with-
 - pre existing chronic kidney disease
 - pre existing diabetes mellitus (type II diabetes mellitus)
 - chronic hypertension
 - autoimmune diseases , Heart failure and malignancy
 - Renal transplant patients
 - Not willing for participation

DEFINITION

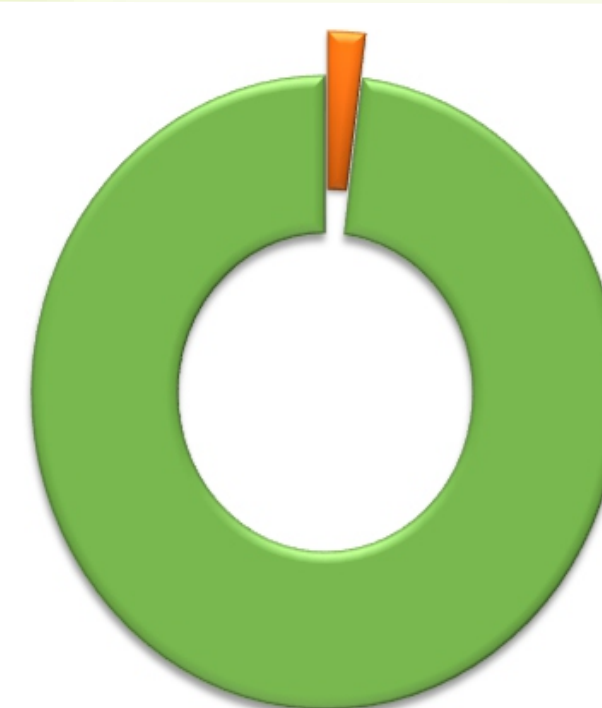
Acute Kidney Injury Kidney Disease Improving Global Outcomes (KDIGO2012) guidelines as:

- Increase in S.creatinine by ≥ 0.3 mg/dl within 48 hrs or,
- Increase in S.creatinine by ≥ 1.5 times baseline , which is known or presumed to have occurred with the prior 7 days or ,
- Urine volume <0.5 ml/kg/hr for 6 hrs

METHODOLOGY



OBSERVATIONS



- Total number of obstetric admissions-10,138
- Total no. of cases that developed AKI – 110
- Incidence of Obstetric AKI – 1.08%.

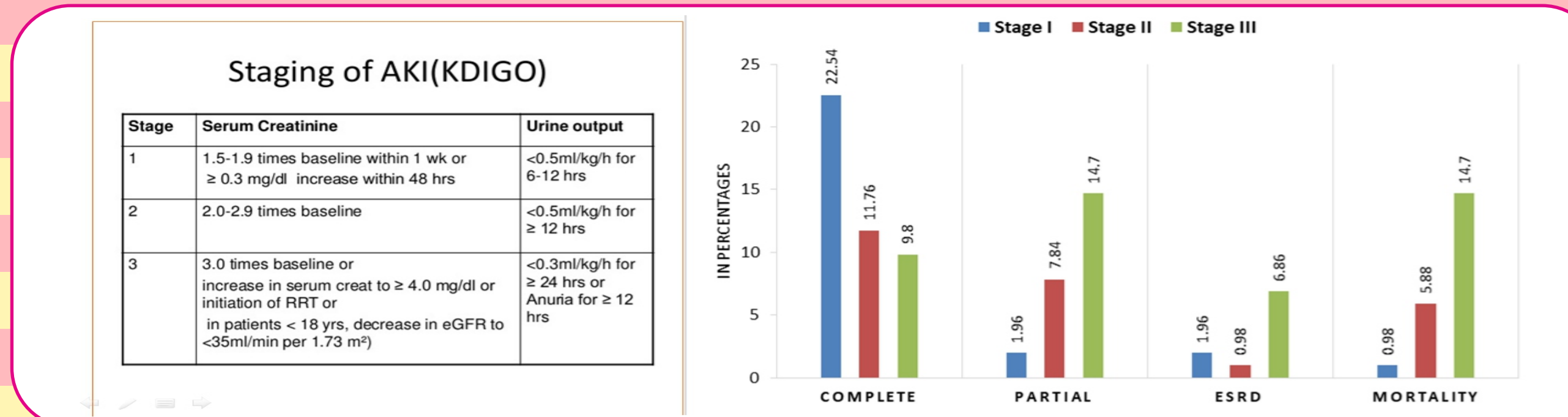
Association of clinical risk factors with complete recovery versus unfavourable outcome in obstetric AKI

Clinical risk factors	Completely recovered (n=45)		Unfavourable Outcome + (n=57)		chi sq	p-value
	No.	%	No.	%		
PE/Eclampsia n=46	24	53.33%	22	38.6%	2.21	0.137
Hemorrhage n=39	19	42.22%	20	35.1%	0.54	0.462
Sepsis n=27	6	13.33%	21	36.8%	7.14	0.008
Acute liver failure /AFLP n=11	4	8.89%	7	12.3%	0.30	0.583
DIC n=5	0	0	5	8.8%	4.15	0.042
LSCS n=38	15	33.33%	23	40.4%	0.53	0.467

Association of social and demographic risk factors with complete recovery vs unfavourable outcome in obstetric AKI

Variable		complete recovery(n=45)		unfavourable outcome (n=57)		chi sq	p-value
		No.	%	No.	%		
Residence	Rural	41	91.1%	52	91.2%	0.00	0.984
	Urban	4	8.9%	5	8.8%		
SES	Lower	29	64.4%	35	61.4%	0.10	0.752
	Not Lower	16	35.6%	22	38.6%		
Education	Illiterate	31	68.9%	40	70.2%	0.02	0.888
	Literate	14	31.1%	17	29.8%		
Booking status	Unbooked	38	84.4%	50	87.7%	0.23	0.633
	Booked	7	15.6%	7	12.3%		
Referred	No	2	4.4%	0	0.0%	2.58	0.108
	yes	43	95.6%	57	100.0%		
Delayed admission/referral >5 days	< 5 days	41	91.1%	16	28.1%	40.57	<0.001
	> 5 days	4	8.9%	41	71.9%		
Mean Haemoglobin(gm/dl)		No. 9.15	SD 3.33	No. 8.33	SD 2.4	t-value 1.44	p-value .153
Mean Serum Creatinine (mg/dl)		2.23	1.06	4	2.2	-5.26	<.001

Correlation of Stage of AKI at the time of presentation with the Final Outcome



Summary

- During the study period, out of 10,138 obstetric cases, 110 patients developed AKI giving an incidence of 1.08%.
- Out of these, 49 cases of pre-eclampsia, 39 cases of hemorrhage and 31 cases of sepsis developed AKI giving an incidence of 0.48% , 0.38% , 0.30% respectively making hypertensive Disorders of Pregnancy the commonest risk factor
- Mean age was 27.95 ± 4.85 years .
- Most cases were unbooked (85.45%), multiparous (69.09%), illiterate (70.90%), from rural area (91.81%) and belonged to lower socio-economic status (60%).
- 42.72% had delayed admission/referral of > 5 days
- 50% cases presented in stage 3, 25.5% and 24.5% in stage 1 and stage 2 respectively.
- 26.36% (n=29) cases needed dialysis.
- In 58.62%, dialysis was initiated after 72 hours.
- 40.90% recovered completely, 22.72% recovered partially, 9.09% progressed to ESRD, 20% expired and 7.22% were lost to follow up
- Sepsis was the leading cause of mortality (50%) followed by pre-eclampsia /eclampsia (27.27%)

Limitations

- Our study was conducted at a tertiary care hospital, it does not truly reflect the etiological spectrum of AKI prevalent throughout the country.
- Secondly, it was difficult to attain renal biopsy of patients with unfavourable outcome.
- Thirdly, estimates of long-term prognosis after AKI in pregnancy were limited by follow up duration.

Conclusion

- For AKI -**Prevention is the best and least expensive solution.**
- It is imperative to develop AKI toolkit with checklist of simple measures and better access to diagnostics.
- Top barriers to kidney care related to patient, physician, and geography factor should be overcome in developing nations .
- Awareness and adoption of guidelines of AKI and CKD is imperative by **non nephrologist physicians as they are the ones that first come in contact with the patients.**
- Linking of nephrologists with primary care physicians especially by telecommunication improves outcome.**
- Equipping hospitals with obstetric critical care units with dialysis and ventilator facilities and multidisciplinary services involving obstetrician, nephrologist and anaesthetist is the need of the hour.**

Clinical Implications

- Our study provides novel and important data for obstetrician, nephrologist and government in the provision of health care.
- Results of our study will help advance our knowledge and understanding of the clinical implications of Obstetric AKI and allow health care providers and policy makers to focus on factors that can prevent development of AKI (primary prevention) and improve outcome in patients with AKI (secondary prevention) .

References

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