EVALUATION OF THE ROLE OF NEPHROTOXIC DRUGS IN CONTRAST INDUCED NEPHROPATHY (CIN)

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INTRODUCTION

- Contrast-induced nephropathy (CIN) is an acute decline in renal function that occurs 24 to 48 hours [1]after intravascular injection of iodinated contrast material (CM)

- The most common definition in use is an increase in serum creatinine (SCr) of 0.5mg/dl or >25% of baseline value occurring following the intravascular administration of CM without an alternative explanation.[2]

Introduction cntd….

- The pathophysiological mechanisms leading to CIN are generally thought to be, alone or in combination, a decrease in renal perfusion, direct CM tubular cell toxicity and free radical formation.

- Most common drugs with nephrotoxicity as side effect include NSAIDS, diuretics, aminoglycosides like amikacin.

Introduction cntd….

- Most studies show additive nephrotoxicity when contrast material and nephrotoxic drugs are given simultaneously.

- The present study aims to demonstrate the effects of CM on patients who are on nephrotoxic drugs.

AIMS AND OBJECTIVES

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- Study the incidence of CIN in patients who are on nephrotoxic drugs and need a contrast enhanced CT or intravenous urogram (cases presenting with an emergency)

- Compare the incidence of CIN in patients on nephrotoxic drugs with that in those not on nephrotoxic drugs.

- Evaluate the importance of withdrawal of nephrotoxic drugs(3 days) in non emergency contrast studies.

MATERIAL AND METHODS

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Place of study	Kamineni Institute of Medical Sciences, Narketpally
Duration of study	JAN 2014- MAY 2014
Type of Study	Prospective, observational study
Sample size(N)	120

GROUPING OF CASES

	SERUM CREATININE	NEPHROTOXIC DRUGS	WAITING FOR 3 DAYS
GROUP A N=40	<1.4mg/dl	+	-
GROUP B N=40	<1.4mg/dl	+	+
GROUP C N=40	<1.4mg/dl	-	-

- **Contrast material used: iohexol (omnipaque)**
- **INFORMED CONSENT TAKEN FROM ALL THE PATIENTS**

INCLUSION CRITERIA

- Those who require contrast enhanced CT or IVU and having base line serum creatinine <1.4 mg/dl.

- Those who are on known nephrotoxic drugs like Aminoglycoside antibiotics, NSAIDS, diuretics in groups A&B.

EXCLUSION CRITERIA

- Cases with parenchymal renal disease. (SERUM CREATININE >1.5mg/dl)
- Cases with renal injury.
- Cases with renal mass or malignancy.
- Cases going for dialysis.

METHOD OF STUDY

- Serum creatinine of each patient is evaluated before the contrast study and 3 days after the contrast study.

CRITERIA FOR DIAGNOSING CIN (CONTRAST INDUCED NEPHROPATHY):

- More than 25 % rise in the serum creatinine level compared to baseline reading in three days[2].
- Rise in serum creatinine >0.5mg/dl from the base line reading in 3 days[2].

STATISTICAL ANALYSIS

- One way Anova test used to calculate the significance of waiting period of 3 days in reducing the incidence of CIN.

RESULTS

INCIDENCE OF CIN

	CIN	NO CIN
GROUP A	6(15%)	34
GROUP B	2(5%)	38
GROUP C	1(2.5%)	39

- p value of 0.045 between groups A & B was noted showing the significance of waiting period in reducing the incidence of CIN.

DISCUSSION

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- The development of acute renal failure is a significant complication of intravascular contrast medium (CM).[3]

- The present study clearly demonstrates the additive nephrotoxicity of CM and other nephrotoxic drugs when used simultaneously as the incidence of CIN in group A is highest among all the groups(15%).

- The study also indicates the importance of waiting period of 3 days for all nephrotoxic drugs while using contrast medium.

Discussion cntd……

- The increasing use of CM, an ageing population and an increase in chronic kidney disease (CKD) will result in an increased incidence of contrast induced nephropathy (CIN).[4]

- When GFR is <60 mL/min preventive measures should be instituted. The risk of CIN is greatest in patients with GFR <30 mL/min.[5]

CONCLUSION

- CONTRAST INDUCED NEPHROPATHY is more common in those on nephrotoxic drugs than general population.
- The incidence is less in elective cases if the said drugs are with held for at least 3 days[2].
- Incidence of CIN is least in those who are not on any nephrotoxic drugs.

REFERENCES

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3. Janet Cochrane Miller. Contrast-Media Induced Nephropathy and Diagnostic CT. *Radiology rounds*. Massachussets General hospital. Feb 2007. Vol5 Issue 2;1-4.


THANK YOU