

# Adverse Drug Reaction Study in Hospitalized Chronic Kidney Disease Patients

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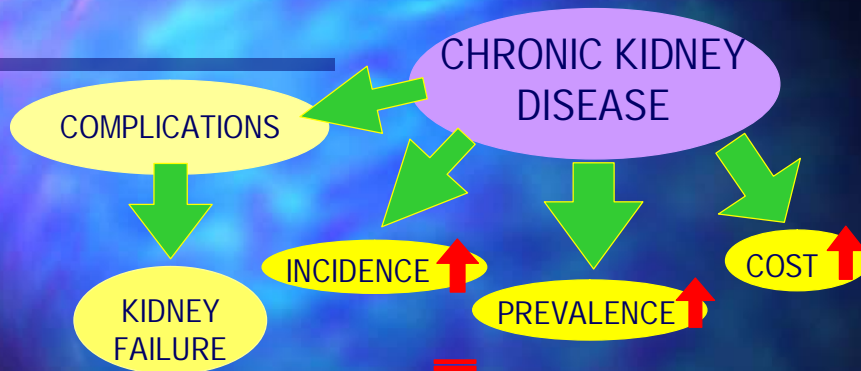
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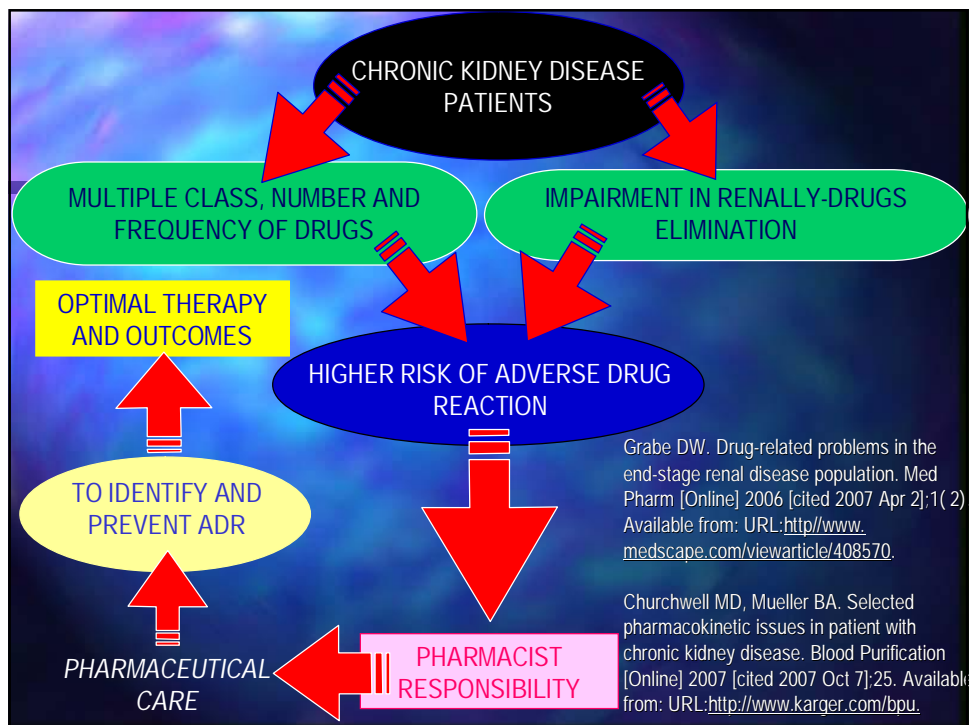
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## BACKGROUND



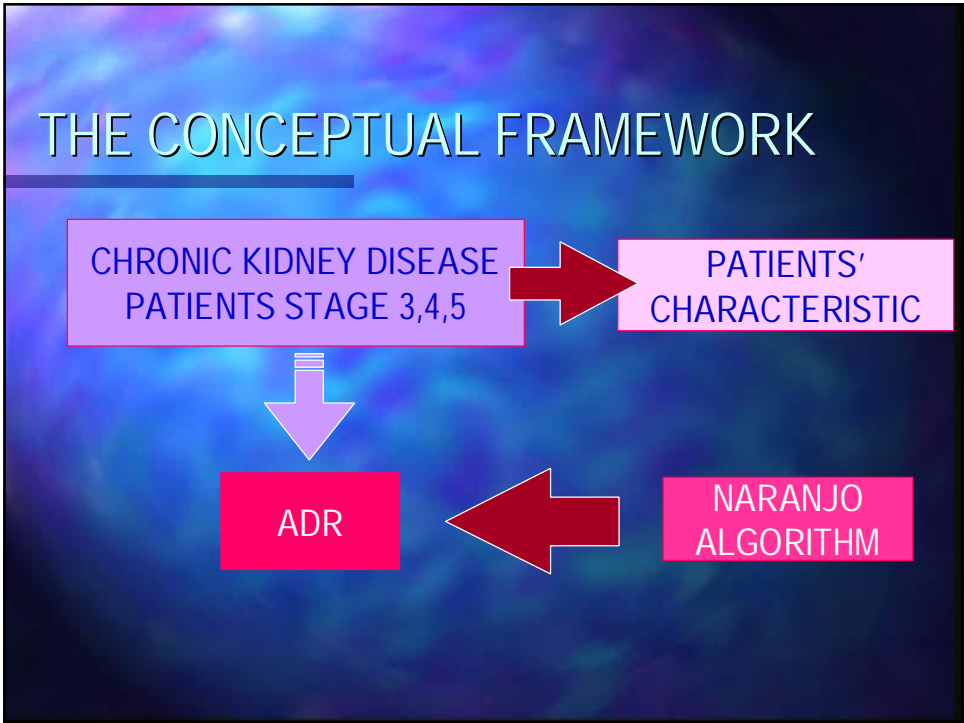
Barsoum RS. Chronic kidney disease in the developing world. N Engl J Med 2006;354(10):997-999.

WORLD HEALTH PROBLEM

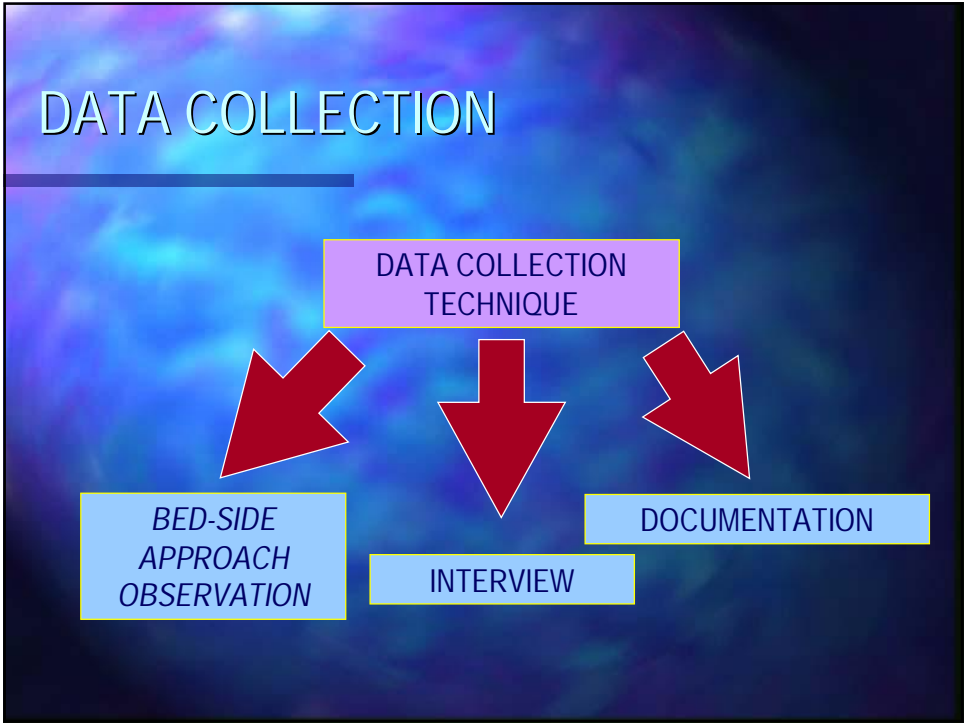
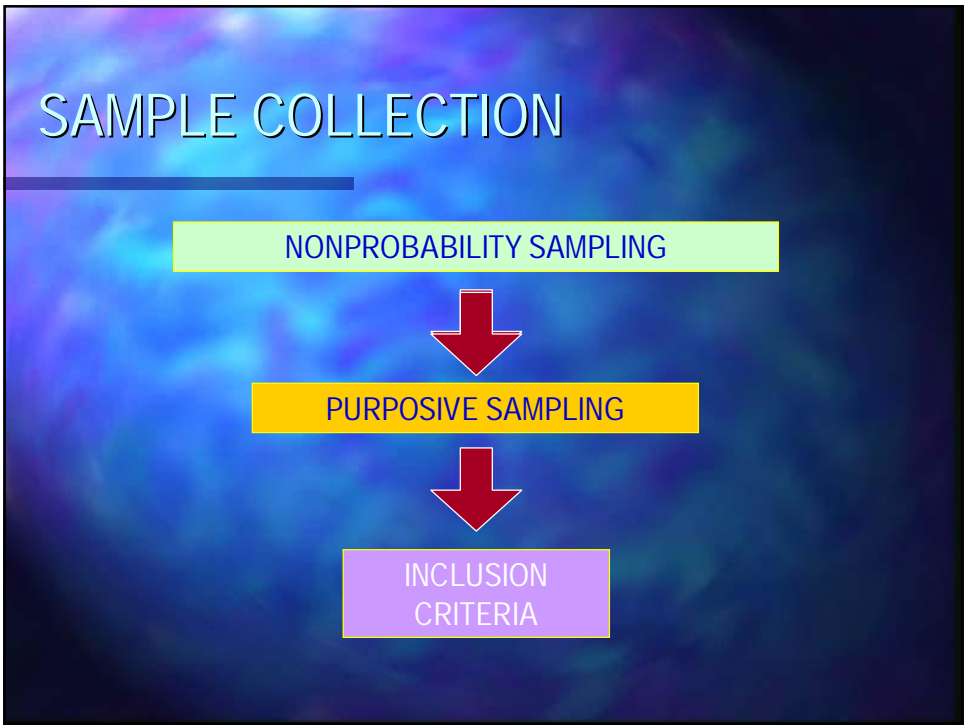


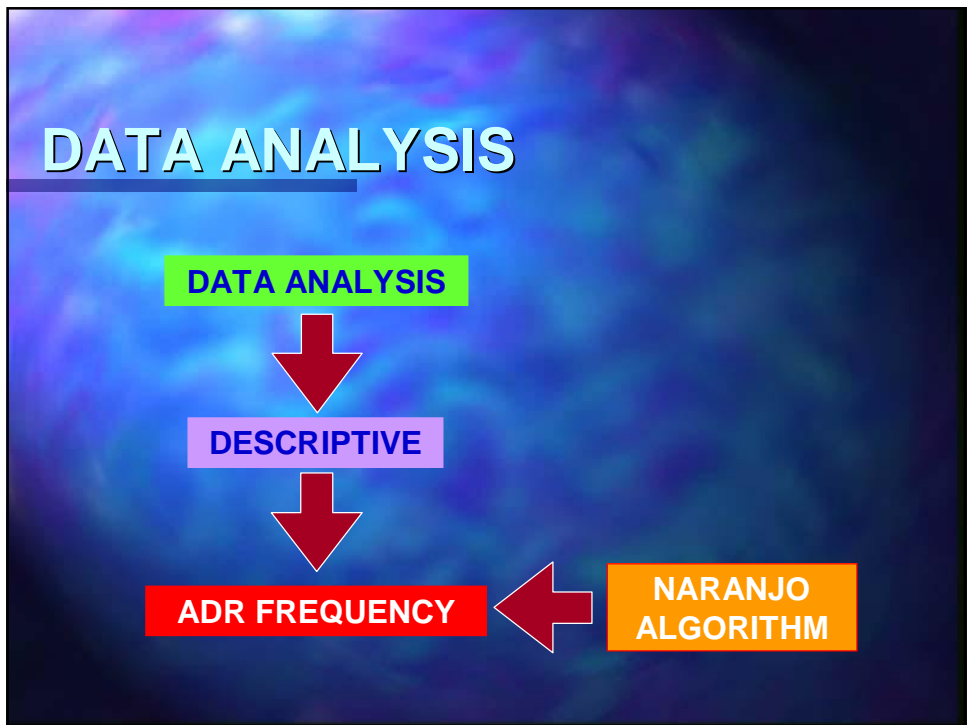
## OBJECTIVE

To identify the frequency of adverse drug reaction in hospitalized chronic kidney disease patients



- ## METHOD
- STUDY DESIGN  
PROSPECTIVE, DESCRIPTIVE
  - INCLUSION CRITERIA
    - PATIENTS AGE  $\geq 18$  YEARS OLD
    - DIAGNOSED CHRONIC KIDNEY DISEASE ON AND/OR AFTER ADMISSION; STAGE 3, 4, AND 5 ACCORDING TO COCKROFT AND GAULT
    - HOSPITALIZED IN GENERAL MEDICINE WARD AT DR. RAMELAN NAVY HOSPITAL IN NOVEMBER 26, 2007 TO FEBRUARY 15, 2008





## PATIENTS' CHARACTERISTIC

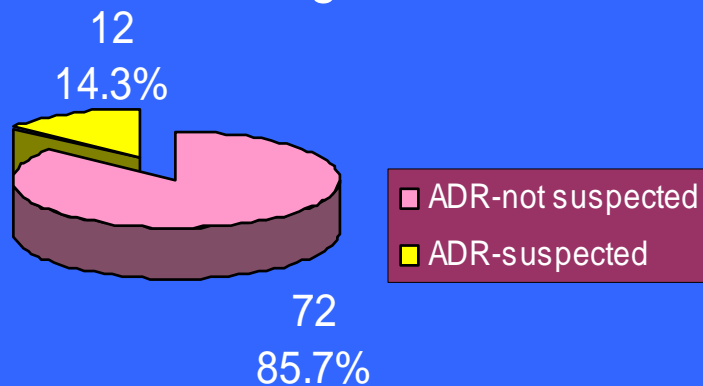
	Stage 3	Stage 4	Stage 5	Stage 5-HD	Total(% of all pts)
N (%) Of all patients					
	5 (6.0)	15 (17.9)	22 (26.2)	42 (50.0)	<b>84 (100.0)</b>
Gender [N (% in each chronic kidney disease stage)]					Total(% of all pts)
Male	5 (100.0)	6 (40.0)	7 (31.8)	23 (54.8)	<b>41 (48.8)</b>
Female	0	9 (60.0)	15 (68.2)	19 (45.2)	<b>43 (51.0)</b>
Mean [(SD) in each chronic kidney disease stage]					Mean (SD) of all
Age (years old)	61.80 (16.98)	58.33 (5.16)	61.73 (6.88)	51.48 (11.75)	<b>56.0 (10.89)</b>
Number of comorbids	1.20 (0.84)	2.73 (1.16)	2.68 (1.46)	1.81 (1.04)	<b>2.2 (1.26)</b>
Length of stay (days)	9.40 (4.56)	10.40 (7.33)	7.32 (4.63)	8.50 (5.01)	<b>8.6 (5.38)</b>

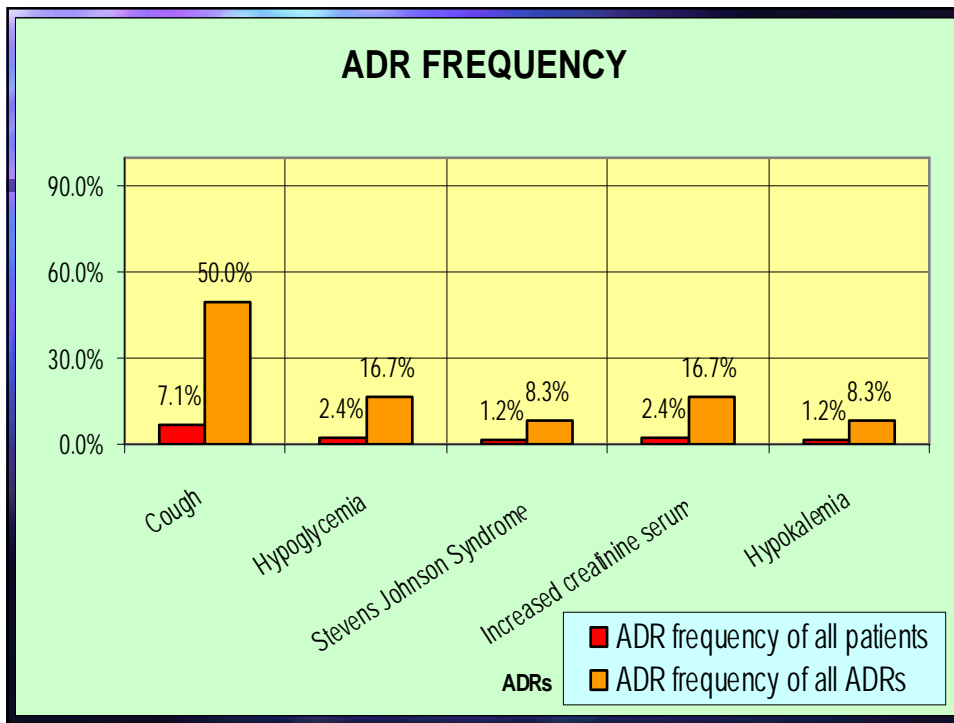
## PATIENTS' CHARACTERISTIC

	Stage 3	Stage 4	Stage 5	Stage 5-HD	Total (% of all pts)
Comorbids	N (% in each chronic kidney disease stage)				
Diabetes	2 (40.0)	13 (86.7)	15 (68.2)	8 (19.0)	38 (45.2)
Hypertension	1 (20.0)	12 (80.0)	17 (77.3)	37 (88.1)	67 (79.8)
Heart failure	1 (20.0)	2 (13.3)	4 (18.2)	5 (11.9)	12 (14.3)
CHD	0	4 (26.7)	4 (18.2)	2 (4.8)	10 (11.9)
Final Condition	N (% in each chronic kidney disease stage)				Total (% of all pts)
Discharged	4 (80.0)	13 (86.7)	13 (59.1)	30 (71.4)	60 (71.4)
Discharged by preference	0	1 (6.7)	3 (13.6)	1 (2.4)	5 (6.0)
Death	1 (20.0)	1 (6.7)	6 (27.3)	11 (26.2)	19 (22.6)

## RESULT

### Adverse Drug Reaction





## RESULTS

ADRs	Drugs Suspected	Naranjo Assessment	Frequency (% of all pts) (N)	Frequency (% of all ADRs)
Hypoglycemia	Insulin	Probable (+8)	2.4 (2 pts)	16.7
Hypokalemia	SPS	Probable (+6)	1.2 (1 pts)	8.3
SJS	Ciprofloxacin- ceftriaxone	Probable (+5)	1.2 (1 pts)	8.3
Serum creatinine increase >30% baseline	Gentamicin, levofloxacin	Probable (+5)	2.4 (2 pts)	16.7
Cough	Captopril	Doubtful (0)	7.1 (6 pts)	50.0

## CONCLUSION

- 14.3% patients experienced ADRs
- The most common ADRs occurred:
  - hypoglycemia due to insulin → scored +8 according to naranjo assessment (probable ADR)
  - Increased creatinine serum due to gentamicin or levofloxacin → both scored +5 according to naranjo assessment (probable ADR)
- Though 7.1% patients experienced cough in this study (50.0% of all ADRs), it only scored 0 (doubtful ADR due to captopril).
- This finding demands the clinical pharmacist awareness about the existence of this problem and cause to prevent unexpected outcomes which could worsen patients' morbidities.

THANK YOU.....



## REFERENCES

- Mosenkis A, Kirk D, Berns JS, 2006, *When Chronic Kidney Disease Becomes Advanced: Guidelines for Care in The Emergency Department and Hospital*, Postgraduate Medicine, Vol. 119, No. 1, (online), (<http://www.postgradmed.com>. diakses 3 September 2007).
- Grabe DW, 2000, *Drug-Related Problems in the End-Stage Renal Disease Population*, Medscape Pharmacist, Vol. 1, No. 2, (online), (<http://www.medscape.com/viewarticle/408570> diakses 2 April 2007).
- Churchwell MD, Mueller BA, 2007, *Selected Pharmacokinetic Issues in Patient with Chronic Kidney Disease*, Blood Purification, Vol. 25, (online), (<http://www.karger.com/bpu> diakses 7 Oktober 2007).
- Naranjo CA, Busto U, Sellers EM, Sandor P, Ruiz I, Roberts EA, et al. A method of assessing the probability of adverse drug reactions. *Clin Pharmacol Ther* 1981; 30: 239-45.

## REFERENCES

- Barsoum RS. Chronic kidney disease in the developing world. *N Engl J Med* 2006;354(10):997-999.
- Levey AS, Atkins R, Coresh J, Cohen EP, Collins AJ, Eckardt KU, et al. Chronic kidney disease as a global public health problem: approaches and initiatives – a position statement from Kidney Disease Improving Global Outcomes. *Kidney International* [Online] 2007 [cited 2007 Dec 22]. Available from: URL:<http://www.kidney-international.org>.

# NARANJO ALGORITHM

No.	Question	Yes	No	Don't know
1	Are there previous conclusion reports on this reaction?	1	0	0
2	Did the adverse event appear after the suspect drug was administered?	2	-1	0
3	Did the AR improve when the drug was discontinued or a specific antagonist was administered?	1	0	0
4	Did the AR reappear when drug was readministered?	2	-1	0
5	Are there alternate causes [other than the drug] that could solely have caused the reaction?	-1	2	0
6	Did the reaction reappear when a placebo was given?	-1	1	0
7	Was the drug detected in the blood [or other fluids] in a concentration known to be toxic?	1	0	0
8	Was the reaction more severe when the dose was increased, or less severe when the dose was decreased?	1	0	0
9	Did the patient have a similar reaction to the same or similar drugs in any previous exposure?	1	0	0
10	Was the adverse event confirmed by objective evidence?	1	0	0

- Source: A METHOD FOR ESTIMATING THE PROBABILITY OF ADVERSE DRUG REACTIONS - NARANJO et al

SCORING FOR NARANJO's ALGORITHM

- > 9 = definite ADR
- 5-8 = probable ADR
- 1-4 = possible ADR
- 0 = doubtful ADR