

Detection of adverse drug reactions by monitoring analytical parameters

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BACKGROUND

Alterations in laboratory parameters can be associated with adverse drug reactions (ADR). Therefore, monitoring parameters may enable early detection and treatment of ADR. The objective is to assess the association between laboratory parameters and ADR in Internal Medicine at a tertiary hospital.

METHODS

Prospective observational study of hospitalised patients in a section of Internal Medicine Section during February and March 2011.

Everyday, a pharmacist recorded medical prescription and the following parameters:

-Na.	-INR.	-GGT.
-K.	-Blood digoxin.	-Alkaline phosphatase.
-Ca.	-Glucose.	-Bilirubin.
-Mg.	-Haemoglobin.	-TSH.
-Serum creatinine.	-Platelets.	-T4.
-Glomerular filtration rate (GFR).	-ALT / AST.	

The causal association between parameters outside the reference range and drugs was analysed using the modified Karch-Lasagna scale.

RESULTS

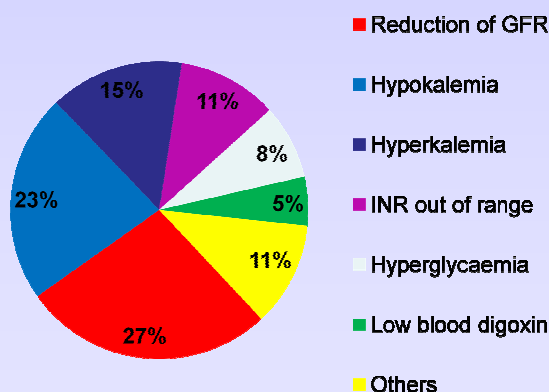
Characteristics patients

- N: 52.
- 65.4% men.
- Median age: 74 years old.
- Median hospital stay: 7 days.

Characteristics of alterations in laboratory parameters

- Mean of parameters per patient outside the reference range: 2.94.
- 79.1% were present at the time of admission.
- 25.5% were associated with drugs: ADR.
- In terms of causality, ADRs were classed as:
 - 52.9% possible.
 - 44.1% probable.
 - 2.9% definite.

DISTRIBUTION OF ADR



DRUGS INVOLVED

Reduction of GFR	Loop diuretics (41.7%), ACE inhibitors (33.3%), ARB (16.6%) and anti-diabetics drugs (8.3%)
Hypokalemia	Loop diuretics (50.0%), fluid without potassium (37.5%) and salbutamol (12.5%)
Hyperkalemia	ACE inhibitors (60.0%) and ARB (40.0%)
INR out of range	Associated with interactions (66.7%)
Hyperglycaemia	Corticosteroid (66.7%) and anti-diabetics drugs (33.3%)
Low blood digoxin	Low blood digoxin during admission

CONCLUSIONS

25.5% of alterations in laboratory parameters were probably or possibly associated with drugs. The most common alterations were as follows: decrease in GFR due to the use of diuretics, ACE inhibitors and ARB; hypokalemia due to diuretics; and hyperkalemia due to ACE inhibitors and ARB. There were no severe ADRs, as these were detected early.