STRATEGIES TO PREVENT KIDNEY DAMAGE IN HOSPITALIZED PATIENTS: A SYSTEM THAT PROTECT PATIENTS FROM NEPHROTOXIC DRUGS AND CONTRAST MEDIA STUDIES.

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INTRODUCTION

More than 50% of hospitalized patients present some degree of renal failure. During their hospital stay these patients are more suitable to recieve a greater number of drugs and to underwent interventional studies. Both conditions increase the risk of kidney function damage, patient morbidity and lenght of stay.

In daily clinical practice the opportunity of take actions in order to prevent kidney damage for adequate prescription of medicines or to prevent contrast media injury are limited.

OBJETIVES

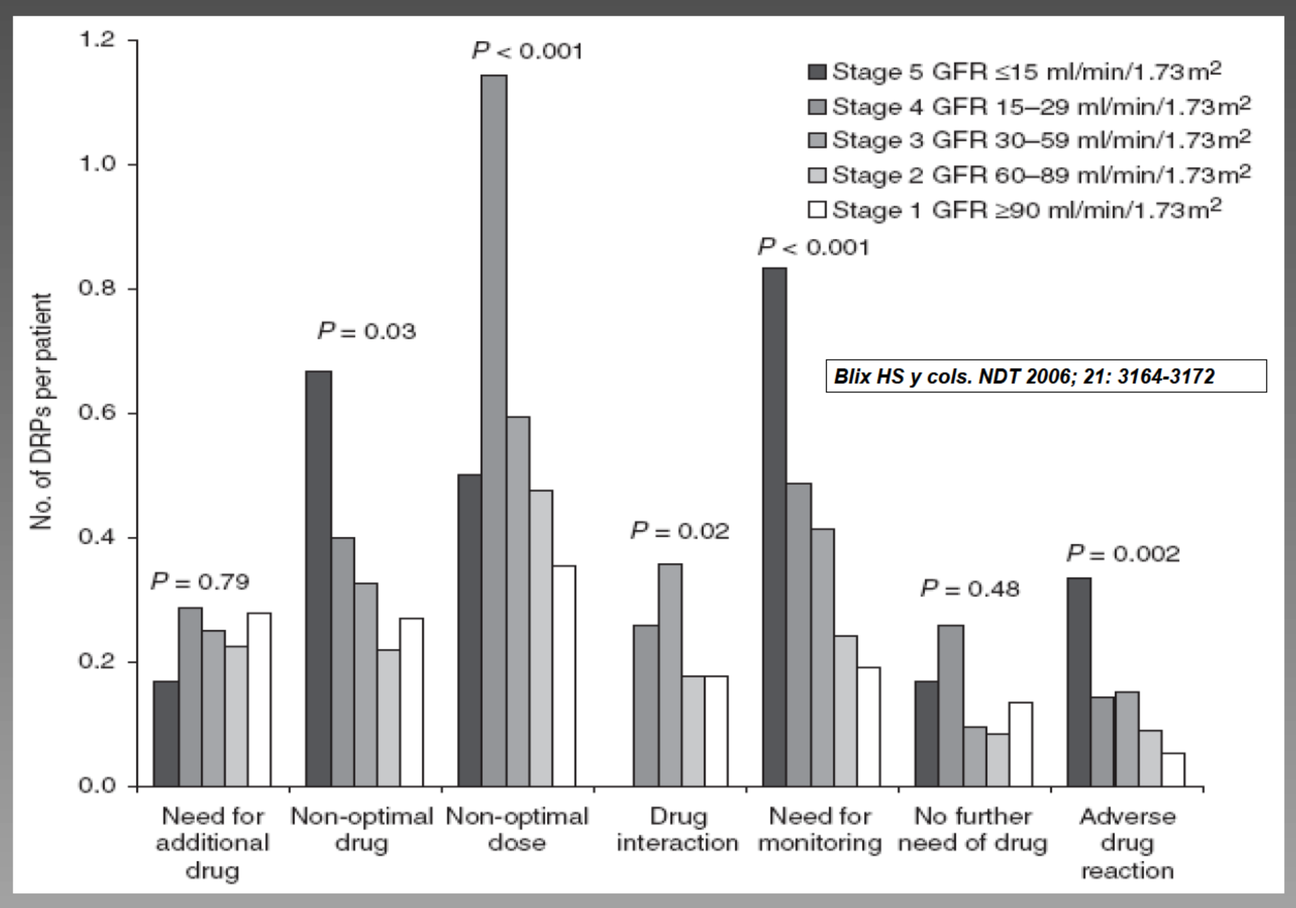
To design, develop and implement an alert system that at bed-side and in real time will inform about those medicines prescribed that will require dose adjustment and prophylactic measures to prevent kidney damage by contrast media taking into account the patient renal function (MDRD-4).

METHODS

Our center is University Public Hospital, with 900 beds and attend a population of 450.000 habitants.

The program was developed in collaboration with the deparments of Information Technology and Pharmacy.

Initially the system was employed during one month in the Deparment of Internal Medicine.



RESULTS

During the one month period there were 330 admissions and taking into account the degree of kidney damage we observed:

- Stage-2: 72.1% -Stage-3: 34.3% - Stage-4+5: 10%

The number of patients that were receiving medicines suitable of dose adjustement was 264 (80%).

The amount of medicines per parient (mean) that required dose adjustment were:

- Stage-2: 2.1 - Stage-3: 3.3 - Stage-4+5: 4.5.

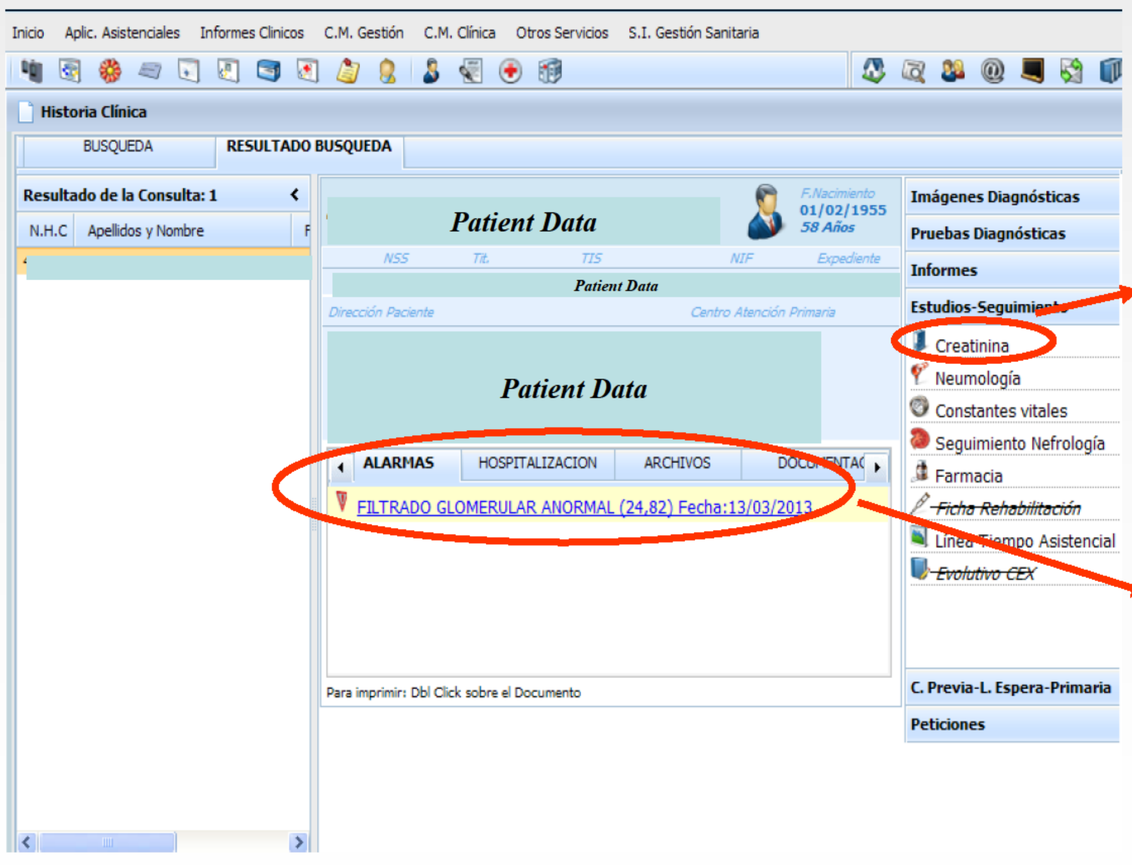
The number of patients that had programmed a contrast media study was 21 (6.4%), all of them had stage-3 CKD.

CONCLUSIONS

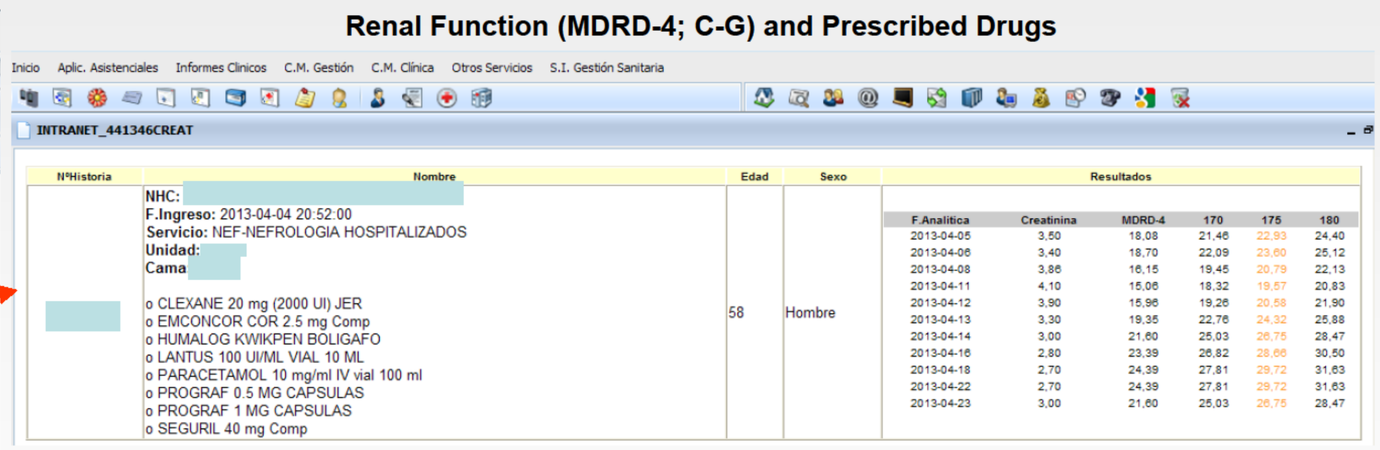
This Alert System permitted to detect instantly those patients that will require dose adjustment of nephrotoxic drugs and prophylactic actions to prevent renal damage caused by contrast media.

Also could represent an useful tool to decrease the morbidity and adverse events associated to kidney damage.

At least in hospital settings the Information Technology could permit develop cost-effective actions that control the incidence of chronic kidney disease.



Renal Function (MDRD-4; C-G) and Prescribed Drugs



Contrast nephropathy prevention

Factores de riesgo para desarrollar nefropatía por contraste

- **Enfermedad renal previa o riñón único**
- **Diabetes Mellitus**
- Sepsis o hipotensión aguda
- Edad> 70 años
- Quimioterapia
- Trasplante de órganos
- Enfermedad cardiovascular (HTA, ICC, enfermedad vascular periférica)
- Drogas nefrotóxicas (diuréticos de asa, anfotericina B, aminoglucósidos, vancomicina, AINEs, quimioterapia)
- Mieloma Múltiple
- SIDA

Guias generales para los pacientes con GFR estimado < 60 ml/min/1.73m²

- Considerar estudios de imagen alternativos que no requieran contraste
- Suspender las drogas nefrotóxicas 48 horas antes del contraste
- Utilizar contrastes isosmolares
- Minimizar el volumen de contraste y evitar estudios repetidos en 72 horas, si es posible

GFRe (MDRD) < 30 ml/min/1.73m²
Riesgo moderado-alto de nefropatía por contraste

- Suero salino 0,9% IV + NAC
- Utilizar contraste isosmolar
- Seguimiento GFR 48-72 h posterior

GFRe (MDRD) 30-60 ml/min/1.73m²
Riesgo moderado-bajo de nefropatía por contraste

- Suero salino 0,9% IV o hidratación oral + NAC
- Utilizar contraste isosmolar
- Seguimiento GFR 48-72 h posterior

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