Prescription review of digoxin-treated inpatients. Pharmacist involvement in its pharmacokinetic monitoring and dosage adjustment.

Del Río Gutiérrez JM[1], Miarons Font M[1], García Garcia S[1], Gracia Moya A[1], Pau Parra A[1], Herranz Muñoz N[1], Soriano Colomé T[2], Rello Sabate P[2], Oristrell Santamaria G[2], Montoro Ronsano B[1], Gorgas Torner MQ[1]

[1] Pharmacy Department, [2] Cardiology Department, **Vall d'Hebron Hospital Campus**, Barcelona.

WHAT WAS DONE?

Twice-weekly active and extensive pharmaceutical review of digoxin-treated inpatients was established.

AIM → **To identify** whether the prescription was adequate and to adjust dosage according to plasma concentrations (PCs) and clinical situation.

WHY WAS IT DONE?

Digoxin is a drug frequently implicated in medication errors due to → its difficult clinical management.

» It has also been observed that digoxin pharmacokinetics could change in acute medical conditions compromising → **its effectiveness and safety.**

» As **hospital pharmacists**, we have the opportunity to review in detail which dose is the most appropriate for every patient.

HOW WAS IT DONE?

1. A **multidisciplinary team comprising pharmacists and cardiologists** was created to identify possible solutions to improve digoxin prescribing.

2. It was agreed that a twice-weekly extensive review of digoxin-treated inpatients would be conducted. Candidates for digoxin monitoring were patients on chronic digoxin therapy and with at least one of the following risk factors

- Presence of renal failure
- Recent surgery
- Elderly patients (≥65)
- Critically ill patients
- Patients with suspected toxicity

3. Once the patients were identified by the pharmacist, they would be discussed with the cardiology team.

4. Digoxin prescriber would be contacted to recommend a PC determination. PC reference range was set at **0.8-1.2 µg/L** for **atrial fibrillation (AF)** and **0.5-0.8 µg/L** for **heart failure (HF).**

5. PCs would be interpreted using a pharmacokinetic monitoring software (PKS Abbot).

6. Monitoring results and recommended dosage adjustments would be communicated.

WHAT HAS BEEN ACHIEVED?

From August 2021 to May 2022, **190 patients** were identified. **65** (33.7%) were considered for monitoring, of whom **21** (32.3%) **were women**. The average age was **77.9** (SD 11.7). **65** (100%) with AF and **8** (12.3%) also with HF.

33 (51%) of monitored patients required a dosage adjustment, of whom **23** (69.6%) required a dose decrease, **5** (15.2%) an increase and **5** (15.2%) to stop the treatment. Median digoxin concentrations were **1.23 µg/L** (interquartile range: 0.75-2.03).

This initiative has improved **prescribing digoxing quality, its effectiveness and safety.**

WHAT IS NEXT?

The process described applies to any center able to **monitore digoxin CPs, both in inpatient and outpatient settings.**

Contact us: josemanuel.delrio@vallhebron.cat