

DETECTION OF PHARMACOKINETIC/PHARMACODYNAMIC DRUG INTERACTIONS OR PATHOPHYSIOLOGICAL CONTRAINDICATIONS



WITH INJECTABLE CHEMOTHERAPIES: IMPLEMENTATION OF THE SOFTWARE PHARMACLASS® IN ONCOLOGY



P. BARREAU¹, J. COUROUBLE¹, P. PILVEN², D. VANDECAPELLE², T. STALA¹, G. STROBBE¹, G. MARLIOT¹, F. FEUTRY¹
¹ Pharmacy department, Centre Oscar Lambret, Lille, France ; ² Keenturtle Society, Paris, France

WHAT WAS DONE?

PharmaClass® is a software based on the creation of rules elaborated by the pharmacist, from pharmaceutical algorithms. This rules engine crosses in real time all data flows coming from several software programs and sends alerts to be analyzed by a pharmacist. This is applied in oncology for injectable chemotherapies.

WHY WAS IT DONE?

Two prescription aid software programs are used in our center, and the pharmaceutical analysis is carried out independently:

DXCARE® (MEDASYS/DEDALUS)

- For overall drug management and biological monitoring
- Used by clinical pharmacists

CHIMIO® (COMPUTER ENGINEERING)

- Specific for the prescription and preparation of injectable chemotherapies
- Used by pharmacists in charge of the preparation

PHARMACLASS® (KEENTURTLE)

- Can improve the pharmaceutical analysis by:
- Crossing all data flows of these two software
- Alerting the pharmacist

→ **Main objectives:** selecting and coding priority alerts, and assessing the detectability of drug interactions and pathophysiological contraindications

HOW WAS IT DONE?

An interface was set up between DXCare®/Chimio® and PharmaClass® to allow the creation of computer queries. An analysis of drug consumptions and drugs at risk of interactions highlighted seven molecules: Methotrexate, Bevacizumab, Fluorouracil, Ifosfamide, Irinotecan, Cisplatin, Pemetrexed.

A review of summaries of product characteristics and the French thesaurus of drug interactions was carried out to codify the rules. These were verified by creating test patients with false prescriptions.

WHAT HAS BEEN ACHIEVED?

11 rules were created and, after some tests and coding reajustements, all of them were detected.

9 drug interactions

2 pathophysiological contraindications

3 contraindications:
Methotrexate/Trimethoprim
Methotrexate/Acetylsalicylic acid
Bevacizumab/Nalogexol

3 associations not recommended:
Methotrexate/Amoxicillin
Methotrexate/Ciprofloxacin
Fluorouracil/Vitamin K Antagonist

1 precaution of use:
Ifosfamide/Aprepitant

2 rules related to the enzymatic induction and inhibition of the metabolism of Irinotecan

2 rules related to the glomerular filtration rate with Cisplatin and Pemetrexed

WHAT IS NEXT?

Following these creations, PharmaClass® allows us to detect drug interactions and pathophysiological contraindications that were previously undetectable. Thereafter, the objectives will be to set up a process for the management of alerts and to evaluate the number and the relevance of these alerts. New rules will be created for all injectable chemotherapies used in our hospital. Other centers of Unicancer (French hospital federation specialized in cancer care) will be able to use these rules.

Contact: - Pauline BARREAU: pauline.barreau2.etu@univ-lille.fr
- Centre Oscar Lambret : f-feutry@o-lambret.fr

Reference:
French thesaurus of drug interactions, ANSM 2019