

# Agreement between potential drug interactions identified by an electronic tool and clinical judgment: INTERCheck® versus physicians

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## Background

The software INTERCheck® provides physicians with the potential drug-drug interactions (pDDIs) of a patient therapy, classifying them based on clinical relevance from the literature, as A(minor), B(moderate), C(major), D(contraindicated). Aim: to assess the concordance between the pDDIs clinical relevance as classified by the electronic tool INTERCheck® and physician's personal judgement; to explore the nature of drug-drug interaction for the more serious cases (e.g. C/D classes).

## Materials and Methods

This retrospective study, conducted in 4 wards between April-October 2014, identified pDDIs from medical records of elderly inpatients  $\geq 65$  years, taking  $\geq 5$  drugs, by using INTERCheck®. Clinical relevance as classified by INTERCheck® was then compared with physician judgement through a structured interview consisting of four questions: is the actual pDDI known? is it clinically relevant?, if yes, why?, would knowledge of the pDDI at prescription time have changed your prescribing approach? Concordance between INTERCheck® and physician judgement was defined as: classification of 'clinically relevant=yes' by physician and class C-D by INTERCheck®; classification of 'clinically relevant=no' by physician and class A-B by INTERCheck®. Moreover, we analysed the drug classes according to Anatomical Therapeutic Chemical (ATC) Classification System for each drug involved in C and D pDDIs by INTERCheck®.

## Results

Medical records of 60 inpatients were analyzed: 1658 drugs were prescribed, 448 unduplicated pDDIs were detected by INTERCheck® and subsequently evaluated by physicians. Of those, 227(51%) were unknown to the physician and 230(51%) were classified by them as clinically relevant: 154(67%) for the potential clinical impact, 54(24%) for patient complexity/co-morbidity, 17(7%) for other reasons. According to INTERCheck®, pDDIs were classified as: 12(3%) A; 275(61%) B; 108(24%) C and 53(12%) D. In accordance to the ATC classification system, we retrieved that the drug classes involved in pDDIs of C and D classes were as follows: Cardiovascular system 33%(107/322), Nervous system 24%(77/322), Blood and blood forming organs 12%(40/322), Respiratory system 10%(33/322), Antiinfectives for systemic use 9%(30/322), Alimentary tract and metabolism 6%(18/322), Musculo-skeletal system 2%(7/322), while Systemic hormonal preparations, Various, Antineoplastic and immunomodulating agents, Sensory organs were retrieved with a rate of 1%. The more detected pDDIs were: clopidogrel-rabeprazole, acetylsalicylic acid-nadroparin, amiodarone-salbutamol and bisoprolol-salbutamol. Excluding for clopidogrel-rabeprazole interacting with a pharmacokinetic mechanisms, the others three pDDIs were associated to pharmacodynamic effects.

Concordance between physician judgement and INTERCheck® was: 17%(2/12) for A, 39%(108/275) for B, 75%(81/108) for C, 74%(39/53) for D. According to the physicians knowledge of the pDDI at the time of prescription would result in therapy change in 23%(52/227) of cases.

## Conclusions

An increasing concordance between INTERCheck® and physician's judgement was found throughout the INTERCheck® classes. This finding will be taken into account to improve INTERCheck® action upon situations where a lower concordance was found.