CPC-042

Drug-related problems in a cardiology department – identifying trends

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Background

In recent years periodic medication reviews have been performed by a clinical pharmacist at four cardiology wards at Aarhus University Hospital, Skejby.
Since November 2010 identified drug-related problems (DRPs) have been detected and classified using the Danish DRP-database. In the database, the identified DRPs are categorized and grouped according to ATC code* and type of drug-related problem. Subsequent extraction of various reports can provide useful information of the trends of the DRPs.

Purpose

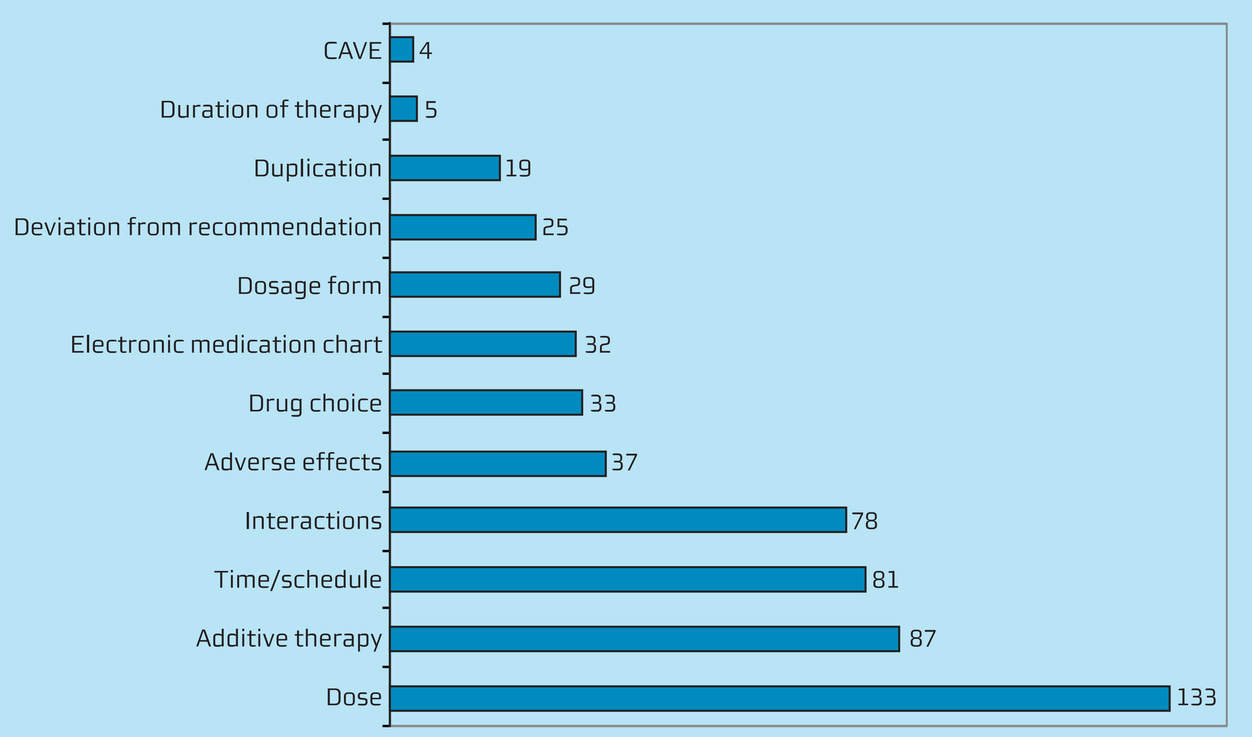
The aim of this study is to identify trends in DRPs at the cardiology department at Aarhus University Hospital, Skejby. Secondly we wish to demonstrate that the DRP-database is a useful tool in analysing data.

Methods

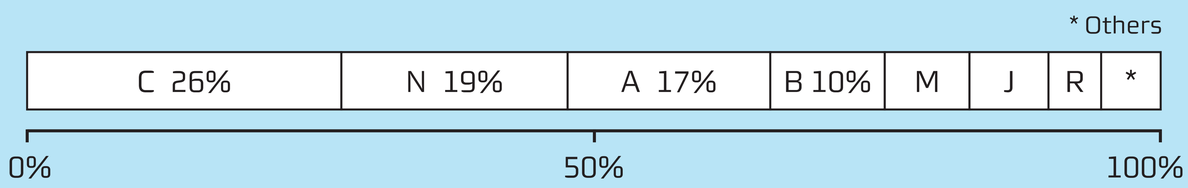
DRPs identified by the pharmacist over a two year period were analysed by using the reports in the DRP-database. 846 medication reviews were included in the analysis and a total of 563 DRPs identified.

Results

Classification of identified drug-related problems



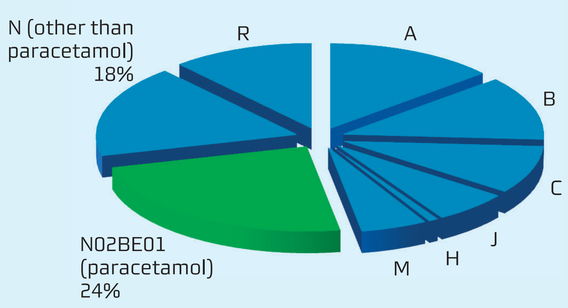
Identified drug-related problems distributed by ATC codes



*Anatomical Therapeutic Chemical (ATC) Classification System

A Alimentary tract and metabolism
B Blood and blood forming organs
C Cardiovascular system
D Dermatologicals
G Genito-urinary system, sex hormones
H Systemic hormonal preparations
J Antiinfectives for systemic use
L Antineoplastics, immunomodulators
M Musculo-skeletal system
N Nervous system
P Antiparasitics, insecticides, repellents
R Respiratory system
S Sensory organs
V Various

Identified DRPs related to "Dose" *Distributed by ATC codes*



Paracetamol – risk of exceeding maximum recommended daily dose

The analgetic drug paracetamol is involved in 24 % of all DRPs related to "Dose".

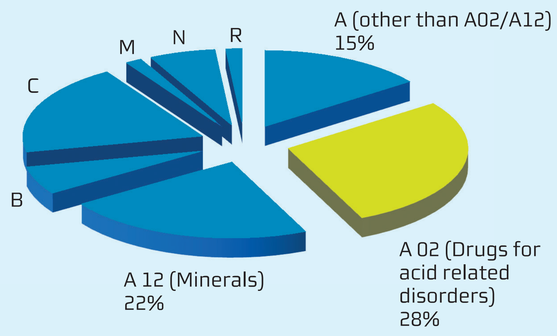
Most frequently the DRP is related to the risk of exceeding maximum recommended daily dose.

Renal impairment – drug dose adjustment

20 % of the DRPs related to "Dose" involve issues of drug dose adjustment in renal impairment. The drugs involved include:

Digoxin, Allopurinol, Rosuvastatin, Magnesium, Alendronic acid, Fondaparinux, Cefuroxime

Identified DRPs related to "Additive therapy" *Distributed by ATC codes*



PPI prophylaxis in patients with high risk of GI-bleeding

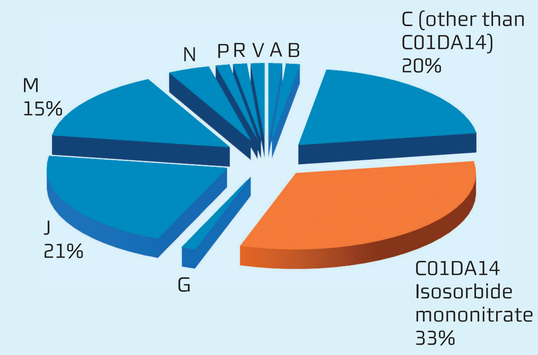
Proton Pump Inhibitors (PPI) are involved in 28 % of DRPs related to "Additive therapy".

Drug therapy issue

Dual antiplatelet therapy (DAPT) with aspirin and e.g. ticagrelor is part of the standard treatment in acute coronary syndromes. DAPT is associated with increased risk of bleeding.

PPI prophylaxis is recommended for patients in DAPT who have a history of previous GI-bleeding or multiple other risk factors (e.g. Heliobactor pylori infection, age ≥65 years, concurrent use of anticoagulants, steroids or NSAID).

Identified DRPs related to "Time/schedule" *Distributed by ATC codes*



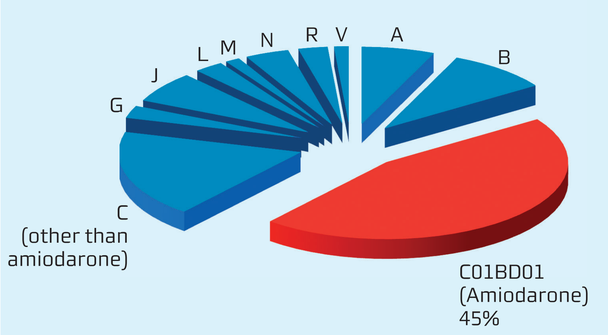
Isosorbide mononitrate – once-daily sustained-release form

The antianginal agent isosorbide mononitrate is involved in 33 % of DRPs related to "Time/schedule".

Drug therapy issue

To prevent development of nitrate tolerance and clinical rebound Isosorbide mononitrate sustained-release form must be given as one single daily dose (e.g. Imdur).

Identified DRPs related to "Interactions" *Distributed by ATC codes*



Amiodarone – major cause of drug-drug interaction

The antiarrhythmic agent amiodarone is involved in 45 % of all the identified interactions.

Concurrent drug therapy issues

Drugs metabolized by CYP enzymes
Amiodarone is a potent inhibitor of CYP enzymes and transport proteins, which may lead to increased serum concentrations/ toxicity of a number of medications (e.g. simvastatin, digoxin, warfarin).

Drugs with QT prolongation potential
Coadministration of other drugs which may prolong QT interval needs special attention because of a possible additive effect and the risk of causing vestricular arrhythmias, especially torsades de pointes (e.g. certain antipsychotic drugs).

Conclusion

The Danish DRP-database has been used to analyse and identify trends in DRPs at the cardiology department.

Identified trends

- Drugs from ATC code C, A and N were often involved in the DRPs
- The most frequent DRPs were associated with "Dose"
- Drug dose adjustment in renal impairment was a frequent DRP
- Paracetamol was the drug most often involved in dose related DRPs
- Amiodarone was involved in 45 % of all the identified interactions
- Isosorbide mononitrate is involved in 33 % of DRPs related to "Time/schedule"
- PPI prophylaxis in patients with high risk of GI-bleeding represents 28 % of DRPs related to "Additive therapy"

Layout: Department of Communication, Aarhus University Hospital, Skejby • TT021365

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