PIM-Check used by physicians to reduce drug-related problems in internal medicine

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Background
Drug related problems (DRPs) are associated with:
- adverse drug events,
- increased length of stay
- Increased hospital costs
Potentially inappropriate medication (PIM) includes over-prescription, under-prescription or mis-prescription and is a risk factor for DRPs.
PIM-Check has recently been developed to detect PIM in internal medicine patients.

Objective
To determine if PIM-Check electronic application, used by physicians, can decrease DRPs in internal medicine patients.

Method
- Open label prospective study (2 consecutive periods of 1 month)
- Patients admitted for > 48h in 7 internal medicine wards
- Period 1: patients treated with usual care (control group).
- Period 2: patients treated with usual care and a medication review performed by chief residents within 24h after admission using PIM-Check electronic application (intervention group).
- At 48h, collection of: all medications, lab results, comorbidities and active diagnosis.
- Endpoints: DRPs identified by a “gold standard” group (1 clinical pharmacist, 1 clinical pharmacologist, 2 attending-physicians of internal medicine), analysing all patients-dataset (blinded to period group).

Results
Patients characteristics
- 297 patients: 188 in control group and 109 in intervention group
- Demographic characteristics are similar in control and intervention groups (age, sex, comorbidities, alcohol/tobacco consumption and number of drug prescribed).

Percentage of patients with at least one DRP

Mean number of DRPs/patients

- Entire population: 909 DRP were detected (mean of 3.1 ± 2.2 DRP/patients)
- Mean DRP and subtype are distributed similarly in both group (p-value 0.12)

Top 5 medications involved in DRPs

- In Intervention group: DRP detection by PIM-Check
  - Mean number of statements provided: 13.9 ± 7 per patients
  - 33.4% of DRPs identified by the gold standard group were highlighted by PIM-Check
  - However no treatment modification was performed by prescribers

Conclusion
- PIM-Check allowed identifying 1/3 of DRPs approved by a gold standard group
- Lack of impact on DRP can be explained by:
  - The high number of statements displayed by the electronic application
  - The reluctance of hospital physicians to modify treatment plan established by the general practitioner for chronic medical conditions, especially in the first 48h of the hospitalisation.

Authors report no conflict of interest

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