Kantonsspital Baden
KSB Apotheke

Forschungsprojekt nationaler Tragweite 2017: Zwischenbericht 2018

Detection and prevention of delirium triggered by adverse drug events

Introduction:

Delirium is a frequent and serious ADE in hospitals. Its prevention may reduce length of hospital stay, mortality and costs, and avoid unnecessary and potentially harmful pharmacological treatment. The manual algorithm (checklist) and automated algorithm (source code) can be implemented in other hospitals, and be used by clinical pharmacists.

Objectives:

1. To detect drug induced delirium and identify risk factors in different population groups
2. To prevent drug induced delirium by automatically calculating anticholinergic burden of drug therapy, displaying alerts in the electronic patient record (EPR) and automatically directing daily lists of orders with candidate medications to experts for review

Planning:

Duration: 3 years (2018-2020)
2018: Literature search and chart review
2019: Development and implementation of the algorithm
2020: Comparison of delirium incidence with and without the algorithm

Status Mai 2017:

Angela Lisibach, the PhD student employed for and in charge of this project, has started to work in December 2017.

She conducted several literature reviews about
- risk factors known to induce delirium
- published anticholinergic scales
- existing predictive models of delirium
- studies trying to validate these models including anticholinergic scales

She also performed a pilot and feasibility study on 59 patients of the geriatric ward has been performed. An abstract has been submitted for the ESCP symposium in Belfast this year. Here are some of the preliminary results of this retrospective study:

21 out of 59 screened patients met our inclusion criteria. 5 patients developed a delirium during their hospitalizations (23.8%). Diagnosis was not always clearly stated in the diagnosis list, in 2 patients it was only found in free text. 51.1% of all DOS measures in delirious patients were ≥3 compared to only 10.6% in non delirious patients. One had even

scores of up to 8. In the delirious patients the average DOS score was 3.2 compared to non delirious patients 0.8 ($p<0.05$).
Most risk factors could be collected from patient records. Homocystein levels and the ECPA score for pain measurements were always missing. Only falls were associated with a higher risk of delirium ($p<0.05$). Additionally, patients with delirium had a lower self-caring index and a higher CRP compared to non-delirious patients ($p<0.05$).

In parallel, Angela Lisibach worked on a protocol for a first retrospective study to identify risk factors which could be linked to structured data in the EPR and to develop an algorithm that can be implemented in the EPR and predict patient at risk for delirium. The model will be validated in a separate patient sample and in different patient populations resp. wards.
The protocol will be sent to the ethical committee end of May.

We are actually waiting for a tool that will allow us to extract and analyse data from ERP. Apparently data extraction is very complicated and we will probably need external help.

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