MEDICATION ANALYSIS FOR HOSPITAL PATIENTS WITH RENAL INSUFFICIENCY: FROM DEVELOPMENT PHASE TO STANDARD PRACTICE

Brigitte Kastner, Johannes Albrecht, Dr. Werner Speckner
Pharmacy Department, Kliniken Nordoberpfalz AG, Sölnerstraße 16, D-92637 Weiden, E-Mail: brigitte.kastner@kliniken-nordoberpfalz.ag

PURPOSE:
Our hospital ward pharmacists’ routine procedure and trainees’ projects have confirmed the utility of ongoing consultation with doctors concerning medicine optimization. We thus analyzed the extent to which ongoing supervision of patients with renal insufficiency could be integrated into daily pharmacy-department procedures despite limited human resources.

METHOD:
Our clinic’s central laboratory compiled a list of the daily GFRs of all in-patients, those with GFR < 40 ml/min then selected for evaluation. The current medication situation was accessed via our electronic patient record. To sensibly limit the number of cases to control, three GFR categories were chosen & compared:

<table>
<thead>
<tr>
<th>GFR category</th>
<th>≤10 ml/min</th>
<th>10-30 ml/min</th>
<th>30-40 ml/min</th>
</tr>
</thead>
</table>

Table: Prognosis of CKD by GFR and albuminuria category (KDIGO 2012)

In total, the medication of 425 patients was monitored from March to June, 2017; with intervention proving necessary in 154 (ca. 36 %) cases, & related to two main areas of focus:
- kidney-related adjustment (via www.dosing.de & SmPC; compilation of a database and of an overview dosage sheet designed to facilitate entry & documentation)
- general drug interaction (via ABAMED database; entries limited to those cases which required corrective change)

RESULTS:
Application of changes regarding medication or at least discussion of suggested adjustments was possible in ca. 73 % of the cases. If the patients already classified as ‘discharged’ or ‘transferred’ (unknown) the following day are included in this figure, then it rises to as much as 84 %.

Chart 2: Application of recommendations

Intervention due to renal impairment varies greatly between the three groups, with drug interaction, in contrast, being largely constant. Overall, GFR 10-30 ml/min cases had the highest intervention rate (50.9 %) among cases in which intervention was carried out (cf. GFR < 10 ml/min: 28.5 %; GFR 30-40 ml/min: 17.1 %). In situations in which adjustment was necessary, on average 1,47 medication errors were ascertained (GFR < 10: 1.33; GFR 10-30: 1.57; GFR 30-40: 1.16).

DISCUSSION / SUMMARY:
The decision to focus only on the 10-30 ml/min GFR group proved itself to be conducive to making structure medication analysis procedures as efficient as possible. Comparison with controls encompassing all groups shows that by opting for limitation to one GFR group the number of patients each day was reduced (16.4 → 8.4), but most of the medication errors were nevertheless identified (8.7 → 6.4). In this form, the service can be permanent. In the case of patients with GFR 30-40 ml/min, renal insufficiency problems associated with medication occur less frequently because the SmPC mostly only provide data for dosage adjustment & contra-indications for patients with GFR < 30 ml/min. Special medical care of dialysis patients (in most cases GFR < 10 ml/min) leads to fewer necessary interventions.

Litteratur:

Chart 3: Interventions, grouped according to category

The most frequent abnormalities were entered onto a fact sheet for doctors. Interactions were particularly evident when levothryoxine or quinolones had been administered with polyvalent cations & amiodipine had been combined with simvastatin. Problems related to renal insufficiency are largely an issue connected with simvastatin, ramipril, diuretics & oral anti-diabetics.

Chart 4: White-coat pocket memory card for doctors