Drug associated risks: Development of an assessment tool

Master Thesis in Pharmacy 2013

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Abstract

Introduction and objectives: Each patient's transfer from an ambulatory setting to hospital and back to their home, or nursing home, presents a significant challenge for medication management. During hospital stay current medication therapies are either continued, discontinued or entirely new therapies are initiated. This can lead to drug related problems (DRPs) and drug related rehospitalisation. Therefore, special attention and measures are needed to ensure therapeutic safety. If patients with a high risk for DRPs are identified at hospital admission, they might benefit from optimised individual pharmaceutical care during their hospital stay and upon their discharge. A well-directed screening to identify patients at risk could therefore be an essential contribution to the improvement of patient care. The goal of this master thesis is the development and validation of such a tool (a self-assessment questionnaire), the "Drug Associated Risk Tool" (DART).

Methods: The relevant risk factors for the appearance of DRPs, which were found in a previous master thesis, provided the basis for the DART. All consenting patients had to fill out the DART on their own and answer some questions to analyse the feasibility, comprehensibility and acceptability. Additionally, four validated questionnaires (BMQ, Morisky, MMT and SF-12v2) were filled out together with the patients. Then the subjective patient answers of the DART were adjusted along with the objective patient data of medical records, laboratory data and the validated questionnaires.

Results: A final two page long self-assessment questionnaire was produced. Our study population embraced 51 patients (mean value: 67 years old, range: 20-89 years old; 43% female, 57% male). On average, the patients required 7 minutes to complete the DART, which all felt to be an appropriate amount of time. Also, none of the patients found any of the statements too private. Of the 51 patients, 41 of them had no difficulties in completing the DART. The mean value of the sensitivity of the individual statements of the DART was 0.57 (range: 0.00-1.00), of the specificity 0.96 (range: 0.88-1.00). The 51 patients reached an overall correlation of the DART of 70%-100%. The analysis of the number of the subjective risk factors versus the objective risk factors resulted in a linear regression of $y = 0.66x + 0.18$ and a R^2 of 0.55.

Conclusion: We were able to show that the DART is practicable. The feasibility, comprehensibility and acceptability are good. In addition, false positive results can be excluded with a high probability of success because of a consistently high specificity. For reliable and meaningful results (especially regarding sensitivity) the number of cases would have to be increased. Furthermore, the numbers obtained for sensitivity cannot be considered as "absolute or definite". However, the issue of whether patients at risk can be identified reliably still requires further investigation.