Validation of a Patient-Filled Stratification Tool on Risks for Drug-Related Problems: Five Items Differentiate Between High and Low Risk

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Background Clinical pharmacy resources in Switzerland are sparse and necessitate to stratify patients at risk for drug-related problems (DRPs). The Drug-Associated Risk Tool (DART) is a self-assessment questionnaire which assesses the patients' health, drugs, application issues, and sorrows about the drug regimen. This patient-filled risk stratification tool aims to support the allocation of clinical pharmacy services without increasing the workload of any caregiver.

Purpose We aimed to validate the drug-related risk score of the DART on its ability to differentiate between hospitalised patients presenting high and low numbers of DRPs.

Method We recruited patients on geriatric wards in a Swiss secondary care hospital and performed pharmacist-led medication reviews type 3 as concurrent criterion measure to the filled DART questionnaires. The medication reviews included a newly developed structured patient interview and the use of the START/STOPP criteria v2 and the Medication Appropriateness Index as explicit and implicit criteria of inappropriate prescribing. DRPs were coded using the Swiss GSASA classification and assessed in their potential relevance using CLEOde. We determined the ability of the questionnaire to distinguish between patient collectives of low and high numbers of identified DRPs by performing a cluster analysis. We used a subsequent discriminant function analysis to reduce the quantity of items. Additionally, scale correlations linked subsets of items to distinct clinical pharmacy services.

Findings Within 110 study participants we identified 595 potential and actual DRPs. The questionnaire differentiated between a collective of patients with a median DART score of 10 and 3 DRPs and a collective with a median DART score of 15 and 8 DRPs. We were able to reduce the quantity of items from 35 to 5 items, showing a moderate to strong correlation with the number of identified DRPs (Wilks' lambda = .57, p < .001; Spearman's rank correlation rho = .44, p < .01). Furthermore, four items correlated significantly with DRPs estimated to be of moderate to high clinical relevance, highlighting patients for immediate medication review.

Conclusion The validation of the DART resulted in five items representing risk factors for DRPs which allow the distinction of elderly patients with high and low numbers of actual and potential DRPs. We were able to link subsets of questionnaire items with distinct clinical pharmacy services, enabling resource allocation.