Learning by doing in the student-run pharmacovigilance programme

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tariquidar on brain distribution of the ABCB1 substrate (*R*)-[^{11}C]verapamil in elderly versus young subjects.

Methods: We performed two consecutive (*R*)-[^{11}C]verapamil PET scans, before and 3 hours after intravenous infusion of the ABCB1 inhibitor tariquidar at an intermediate dose of 3 mg/kg body weight, in five young (mean age: 26 ± 1 years) and five elderly (mean age: 68 ± 6 years) healthy male volunteers. PET imaging was accompanied by arterial blood sampling and data were analyzed by kinetic modelling to estimate the total distribution volume (V_T) of (*R*)-[^{11}C]verapamil in whole brain gray matter.

Results: In baseline scans before ABCB1 inhibition there were no significant differences in (*R*)-[^{11}C]verapamil V_T between the elderly and the young group (V_T elderly: 0.78 ± 0.15, young: 0.79 ± 0.10, p = 1.00, Mann Whitney test). In scans after ABCB1 inhibition, V_T increases were significantly higher in the elderly group (1.40 ± 0.16-fold) than in the young group (1.02 ± 0.17-fold, p = 0.032). There were no significant differences in the area under the curve of unmetabolized (*R*)-[^{11}C]verapamil in plasma between the elderly and young group, both for baseline scans and scans after ABCB1 inhibition. Moreover, tariquidar plasma concentrations at the time of the PET scan were not significantly different between the two groups.

Conclusions: We found significantly higher increases in brain distribution of (*R*)-[^{11}C]verapamil in response to ABCB1 inhibition in elderly versus young subjects, which suggests an elevated risk for ABCB1-mediated DDIs at the BBB of elderly subjects due to reduced ABCB1 transport activity.

LEARNING BY DOING IN THE STUDENT-RUN PHARMACOVIGILANCE PROGRAMME

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Background: Pharmacovigilance, the monitoring of drug safety after marketing approval, depends highly on the adequate reporting of adverse drug reactions (ADRs). To improve pharmacovigilance awareness and future ADR reporting among medical students, we developed and evaluated a student-run pharmacovigilance programme.

Methods: In this project, teams of medical students (1st-5th year) assessed real ADR-reports as submitted to the national pharmacovigilance centre. After assessment of causality, including identification of a potential pharmacological explanation for the ADR, they wrote a personalized feedback letter to the reporter and a summary for the EMA and WHO pharmacovigilance databases. This student assessment was then verified and evaluated by Lareb staff, using an E-questionnaire. Student attitudes, intentions, skills, and knowledge of ADR reporting were evaluated with an E-questionnaire before and after participation.

Results: From May 2014 to January 2015, 43 students assessed 100 different ADR reports selected by Lareb staff (n=3). Student assessments were rated as useful (93%), scientifically substantiated (90%), accurate (92%), and complete (92%), and, on average, did not cost Lareb staff extra time. Medical students were positive about ADR reporting. Their awareness of ADR reporting increased significantly following participation and they would be more likely to report ADRs in the future. The students' knowledge of pharmacovigilance and ADR reporting showed that they had a high overall level of pharmacological understanding.

Conclusions: The student-run pharmacovigilance programme is a win–win venture. It offers students a valuable "pharmacovigilance experience", creates awareness in future doctors, and has the potential to increase pharmacovigilance skills and knowledge.

A MULTIFACETED INTERVENTION TO IMPROVE GUIDELINE ADHERENCE AMONG PRESCRIBING PHYSICIANS AT SURGICAL WARDS

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Background: The P-REVIEW study, a prospective, multicentre, open intervention study, has shown that an approach of education of the prescriber combined with audit and feedback by the hospital pharmacist can lead to a reduction of drug-related complications among patients at surgical wards.[1] In this study we also determined whether such approach improves adherence of prescribing physicians to key pharmacotherapeutic guidelines.

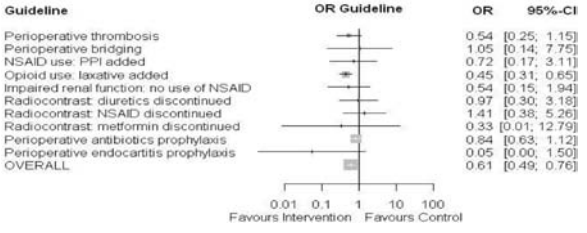
Methods: 1435 admissions of 1378 patients who were admitted to surgical, urological or orthopaedic wards during the usual care period and 1195 admissions of 1090 patients during the intervention period were included.

An educational program covering pain management, antithrombotics, fluid and electrolyte management, prescribing in the case of renal insufficiency, application of radiographic contrast agents and surgical antibiotic prophylaxis was presented to all prescribers on the participating wards. National and local hospital guidelines were part of this program. Hospital pharmacists performed medication safety consultations, combining medication review of high-risk patients and visits to ward physicians.

Primary outcome of the study was the proportion of patients in which the physician did not adhere to one or more of the included guidelines (overall non-adherence).

Results: Overall non-adherence decreased significantly during the intervention period (21.8% (193/886)) compared to the usual care period (30.5% (332/1089)). The adjusted odds ratio (OR) was 0.61 (95% CI 0.49-0.76).

Figure. Forest plot of nonadherence of prescribers to pharmacotherapeutic measures based on prevailing guidelines.



Conclusions: The P-REVIEW study shows that education and support of the prescribing physician with respect to high-risk patients in surgical departments can improve guideline adherence among prescribing physicians at surgical wards.

Reference

1. Bos JM, van den Bemt PM, Kievit W, Pot JL, Nagtegaal JE, Wieringa A, Van der Westerlaken MML, Van der Wilt GJ, De Smet PAGM, Kramers C. A multifaceted intervention to reduce drug-related complications in surgical patients. *Br J Clin Pharmacol*. 2016. http://dx.doi.org/10.1111/bcp.13114