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Home Medicines Reviews - what are the most common drug-related problems?

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Objective. In Australia, pharmacists perform home medicines reviews (HMRs) for patients to identify and resolve drug-related problems (DRPs). The objective of this study was to describe characteristics of patients frequently referred for HMRs and the number and nature of the DRPs identified in HMRs.
Methods. An observational cohort study was conducted across all states in Australia. Pharmacists accredited to perform HMRs submitted a random sample of HMRs that they had performed during 2008. Information from the HMR referral, report and outcomes of the HMR were classified according to standardised systems and entered into an electronic database for analysis.
Results. Six hundred and sixty-one HMRs were submitted by one hundred and forty-nine pharmacists. The patients' most common medical conditions were cardiovascular, musculoskeletal and endocrine diseases (mean 8.8 ± 0.2 diagnoses per patient). The patients were taking a total of 7942 medications, representing a mean of 11.8 ± 0.2 per patient. The HMR reports documented 2323 DRPs, of which the most common were *Condition not adequately treated* (16.5% of DRPs), *Therapy required* (11.3%) and *Toxicity evident* (10.6%). The most common DRP was inadequate pain management which was identified in 118 (17.9%) patients. The drug groups most commonly involved in DRPs were antithrombotics, peptic ulcer and oesophageal reflux therapies and lipid modifying agents.
The pharmacists made 2727 recommendations to resolve the DRPs. The most frequently made recommendations included performing laboratory monitoring, commencing a new medication, or ceasing another. Information relating to the outcomes of the recommendations made to resolve the drug-related problems was available for 66% of the data (1801 recommendations). Of these recommendations, 1565 (87%) required the prescriber to act on the recommendations to implement them. Approximately three quarters of the DRPs were addressed in some way.
Discussion. Most patients referred for HMRs take multiple medications for multiple chronic medical conditions. This study provides further evidence of the ability of the pharmacist to identify and resolve DRPs, potentially leading to positive clinical outcomes.

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Influence of media commonly used to facilitate swallowing on drug release from crushed tablets

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Objective. Commercially available solid dosage forms are commonly altered to facilitate medication administration. It is prevalent in both the community and hospital practice where tablets are usually crushed or capsules opened and the powder mixed with a food or drink before swallowing. The literature commonly indicates that this is a concern because of dose-dumping and faster absorption, but usually the instruction not to crush is limited only to dosage forms with modified-release characteristics. The influence of mixing with a food or drink on drug release from crushed immediate-release tablets is considered in this study to extend previous work that has indicated a potential for substantial delayed release from some viscous media.
Methods. Tablets (amlodipine, atenolol, carbemazepine, warfarin) were crushed and the powder mixed into liquid media (water, orange juice) and viscous media (honey, thickened fluid, yogurt, strawberry jam). Drug release was measured using standard dissolution apparatus in stimulated gastric fluid with and without pepsin.
Results. Drug dissolution was generally faster when crushed and administered with a liquid than for the whole tablet. Dissolution rate reduced when administered with a viscous media, most severely with thickened fluid. Most worryingly, the use of thickened fluid slowed release of carbemazepine and warfarin to such an extent that less than 50% was released within 3 hours of testing.
Discussion. Drug release, as tested using a standard dissolution test, was affected by the choice of mixer in a manner that was drug dependent. This study has shown that drug delivery has the potential to be considerably different to that expected as a result of crushing an immediate-release tablet and mixing with foods before swallowing. This is of particular importance to medications with a narrow therapeutic index.