

Formulation and stability of oral liquids – an evolving research and skill base in compounding

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BACKGROUND

The lack of commercially available oral liquids is an ongoing problem for health care providers in many practice settings. Pharmacists are often challenged to provide extemporaneous oral liquids to meet specific patient requirements.

METHODS

This study examined new stability data of extemporaneous oral liquids since the previous review published in 2006. A review protocol was developed with data identified from MEDLINE, EMBASE, Informit, Google Scholar and reference texts related to the field. Searches were current as of July 2014.

RESULTS

The review included 42 examples of extemporaneous oral liquids prepared by altering commercial medicines, including the methods, excipients and outcomes of the physical and chemical stability studies. This review presents more complex stability issues, where investigators have proposed the inclusion of specific excipients to address stability problems identified in the past, including: the pH adjustment of lansoprazole oral liquids by addition of NaHCO_3 ; the inclusion of antioxidants in mercaptopurine oral liquid; the addition of povidone K-30 to prevent crystal growth, and citric acid to optimise pH in temozolomide oral liquid; and the adjustment of storage conditions to prevent enantiomeric conversion of clopidogrel.

DISCUSSION

The research and skill base in compounding has evolved since the previous review and many improvements have been made to address the various formulation and stability issues in preparing extemporaneous oral liquids from commercially available products. This improved understanding of the role of excipients in the stability of oral liquids will allow pharmacists to meet the challenge of addressing the needs of patients requiring oral liquids.