Marie Curie Cancer Care Research Programme - Project Grant

Project details

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Chemical compatibility of drugs administered by continuous subcutaneous infusion for end of life care

Duration of project: 36 months
Start date: 1 April 2011
Budget: £200,342

Abstract

Background In 2007, the National Patient Safety Agency (NPSA) issued an alert about injectable medicines after receiving reports of medication errors. Subsequent guidance recommended the compatibility of commonly used mixtures should be readily available. In 2008, the Medicines and Healthcare products Regulatory Agency (MHRA) stated that research should be commissioned to develop authoritative national advice on the compatibility and stability of medicines delivered via continuous subcutaneous infusions (CSCIs) for pain and symptom control at the end of life palliative care. Pilot chemical analysis has been performed during the past year to ensure feasibility.

Aims and Objectives This study aims to develop an authoritative national guide detailing the chemical compatibility of a selection of drug combinations commonly used for symptom management during the last months and days of life. While many mixtures appear physically compatible (i.e. clear, colourless and free from precipitation) chemical incompatibilities cannot be discounted. It is unknown whether symptom deterioration that may occur in some patients is due to disease progression, or chemical incompatibilities reducing the availability of active drugs.

Methods Initially, the development of a list of commonly used drug mixtures will be determined. This will be achieved through analysis of a database which will incorporate data generated by a national survey. Drug mixtures will be prepared in duplicate and will be attached to a syringe driver programmed to deliver the contents over a 24 hour period, simulating clinical use. Samples will be taken from the giving set at four set time points over the 24 hour infusion period. At each time point the appearance of the contents of the syringe and giving set will be monitored visually, pH will be measured and individual drug concentrations will be assayed by high performance liquid chromatography diode array detection (HPLC-DAD). The appearance of any degradation is also monitored by HPLC-DAD. Further techniques that may be employed include Liquid Chromatography Mass Spectrometry (LCMS) and Ion Mobility Spectrometry (IMS).

How the results of this research will be used There is a definite need for chemical compatibility data of drug mixtures commonly used for pain and symptom control at the end-of-life. Healthcare professionals will be able to use such data to inform their clinical decision making and ensure the best possible care for patients as they approach the end of life. The information gained by undertaking this work would have both national and international application and has the potential to be of great importance for palliative medicine.