Conclusion and relevance The results showed that the role of the pharmacist was essential for implementation of the non-profit trial. In fact, they allowed the compounding required by the study design, ensuring safety and quality, with significant cost savings. The stability test demonstrated that the compounding can be stored for up to 6 months under standard conditions.

REFERENCES AND/OR ACKNOWLEDGEMENTS

The International Pharmacopoeia, ninth edition, 2019.

Conflict of interest No conflict of interest

3PC-068 LONG TERM STABILITY OF CO-ADMINISTRATION OF BUMETANIDE AND SCOPOLAMINE FOR THE PALLIATIVE CARE UNIT

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Background and importance Death rattle occurs in 25–90% of dying patients and is often associated with pulmonary fluid overload. Co-administration of scopolamine (anticholinergic drug) and bumetanide (loop diuretic) could be used to avoid unnecessary fluid overload at the end stage of life.
Aim and objectives The study aimed to investigate the physical and chemical stabilities of the admixture bumetanide and scopolamine, prepared in advance, by a centralised intravenous additive service (CIVAS) in the hospital pharmacy.
Material and methods Stability of minimal (min) concentration was evaluated for five polypropylene syringes of 48 mL containing the admixture bumetanide (Burinex 2 mg/4 mL, Leo, Belgium) and scopolamine (0.25 mg/mL, Sterop, Belgium) at 41.67 µg/mL and 5.21 µg/mL, respectively. The maximal (max) concentration with 125 µg/mL of bumetanide and 31.25 µg/mL of scopolamine was evaluated for five polypropylene syringes of 14 mL. All syringes were stored for 18 days at 5±3°C. Periodic samples were visually and microscopically examined to observe any particle appearance or colour change. pH and absorbance at three wavelengths (350, 410 and 550 nm) were monitored. The concentrations were measured by ultra-high performance liquid chromatography–photodiode array detection.
Results Over 18 days, there was no change in colour or appearance of opacity, turbidity or precipitation, and the pH remained stable. The relative concentrations of bumetanide and scopolamine at min and max concentrations after 18 days were unchanged, with 100.1% and 100.3% of the initial content of bumetanide and with 99.2% and 99.4% of the initial content of scopolamine. The lower limits of the 90% CI on the means of both molecules at min and max concentrations remained higher than the 90% threshold that considers the mixture to be chemically stable.
Conclusion and relevance The study is the first to show that the admixture of bumetanide and scopolamine is physically and chemically stable at two concentrations used in the palliative care unit. This combination, available in polypropylene syringes, has numerous advantages (eg, preparation under aseptic conditions by a CIVAS with decreased workload and preparation errors).

REFERENCES AND/OR ACKNOWLEDGEMENTS

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3PC-069 IMPROVING SAFETY AND QUALITY FOR ASEPTIC TRANSFER PROCEDURES IN HOSPITAL PHARMACIES

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Background and importance Materials used in aseptic manufacturing, such as medical devices (MD), infusion bags (IB), bottles (B), infusion vials (V) and ampoules (A), usually undergo disinfection with alcohol 70%. Alcohol, however, is known not to eradicate all microbes (eg, bacterial spores).
Aim and objectives To explore the effectiveness of a sporicidal aseptic transfer approach using high speed H_2O_2.
Material and methods For 12 materials and their cardboard packaging (MD, IB, B, V and A), three samplings each at the outer and inner sides of the packaging and at the unpacked material surface were tested with contact plates (108 plates) applied for 5 s. After incubation for ≥72 hours at 20–25°C and 30–35°C, respectively, contact plates were observed for colony forming units (CFU). Unpacked materials were additionally tested, three samplings each (36 contact plates), after sporicidal disinfection using high speed H_2O_2 (wipes and foam).
Results Without disinfection, CFU appeared on 81% and 33% of contact plates for the outer and inner sides of the cardboard boxes. The surface of the materials showed contamination for 25% of the plates. The microbes found on the plates included bacteria, aerobic endospore formers (Bacillaceae) and Aspergillus. After sporicidal disinfection, microbial growth was seen on none of the plates.
Conclusion and relevance As a risk based approach to contamination control is fundamental for aseptic transfer procedures, our results reflect the strategy for minimising contamination for aseptic manufacturing. Endospore forming bacteria were found as part of the contamination flora on the surface of several material samples. Therefore, a sporicidal agent (eg, high speed H_2O_2) is required to minimise the contamination risk not only when materials are transferred to clean room classes B and A, but preferably when entering the production area (zone D).

REFERENCES AND/OR ACKNOWLEDGEMENTS

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3PC-070 EVALUATION OF COMPATIBILITY OF ACETYLSALICYLIC ACID AND ATENOLOL WITH MEDICATIONS COMMONLY USED IN INTENSIVE CARE UNITS

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Background and importance Patients hospitalised in intensive care units (ICUs) often require the use of multiple drugs, and the intravenous (IV) route is the most common mode of administration. IV access is usually limited, leading to concomitant administration of different drugs in the same infusion line. A previous work[1] identified many administrations via a Y site without compatibility data. A list of missing data was established.

Aim and objectives From this list, we decided to evaluate the physical compatibility of two drugs frequently administered (acetylsalicylic acid and atenolol) with other drug used in ICUs by visual tests, subvisual tests and pH measurement.

Material and methods Each pair of drugs was mixed in three ratios (drug A/drug B: 9/1; 5/5; 1/9). Visual analysis, such as precipitation formation, colour change, gas formation, subvisual evaluation by UV spectrophotometry at 350, 410 and 550 nm, and pH measurements were performed for each mixture.

Results A total of 17 pairs of two drugs were tested: 10 mixtures with acetylsalicylic acid and seven mixtures with atenolol. For the mixtures with acetylsalicylic acid, eight were compatible pairs and two were incompatible pairs: acetylsalicylic acid with canreonate potassium (precipitate formation) and with Nutryelt (colouring in pink). For the mixtures with atenolol, five were compatible pairs and two were incompatible pairs: atenolol with mycophenolate (appearance of haze) and with Nutryelt (colour change).

Conclusion and relevance After laboratory tests, new incompatibilities were found which gives additional information to the literature. This study demonstrated that all mixtures were compatible except for acetylsalicylic acid with canreonate potassium and Nutryelt, and atenolol with mycophenolate and Nutryelt. However, many other mixtures should be studied due to missing data.

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3PC-071 FULLY AUTOMATED CENTRAL INTRAVENOUS ADDITIVE SERVICE (CIVAS): A 12 MONTH ANALYSIS OF PERFORMANCES AND IMPACT OF COVID-19 ON STERILE ANTIBIOTIC PRODUCTION

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Background and importance In 2014, the hospital pharmacy started a project to implement a central intravenous additive service (CIVAS) unit. A pre-feasibility study was performed, a new class C clean room equipped with the robotic system APOTECA unit was built and the fully automated aseptic production process was validated. In 2016, the CIVAS started producing standard doses of chemotherapy supportive treatments (palonosetron, ondansetron, dexamethasone) in ready-to-administer form for the oncology and haematology units. The production was then shifted to antibiotics (cefazolin, piperacillin–tazobactam, ceftriaxone) and pantoprazole for infectious disease, cardiac surgery and emergency medicine departments. Currently, the in-advance production of batch preparations at CIVAS is mainly based on daily consumption and performed by one pharmacy technician and one pharmacist (0.25 full time equivalent each). The working day is from 8am to 4pm (Monday–Friday).

Aim and objectives The aim of this study was to analyse the performance of the CIVAS over the past year and evaluate the impact of the COVID-19 pandemic on the increasing demands for sterile antibiotics by emergency departments.

Material and methods Overall CIVAS production, dosage accuracy and average production time (APT) of each ready-to-administer preparation were evaluated over a period of 12 months (from September 2019 to August 2020). Data were collected from the APOTECA statistical tool.

Results 12 215 preparations were compounded, of which 26% were in syringe (1 g cefazolin, APT 125 s) and 74% in 100 mL NaCl 0.9% infusion bags (55% for 4.5 g piperacillin–tazobactam, ATP 203 s; 14% for 40 mg pantoprazole, ATP 196 s; 5% for 2 g ceftriaxone, ATP 177 s). Average dosage accuracy for all preparations was 98.9±1%. During the peak of Italy's COVID-19 outbreak (March 2020), weekly production increased by 28%. The production of pantoprazole remained steady, while piperacillin–tazobactam and ceftriaxone for the emergency departments increased considerably (+19% and 9%, respectively) and cefazolin for the cardiac surgery department decreased by 26%.

Conclusion and relevance Implementation of a fully automated CIVAS allows measuring and controlling every step of the production process for ready-to-administer preparations. The study showed that CIVAS met increasing demands for sterile antibiotics during the pandemic crisis, thereby supporting the emergency units and providing the highest level of quality and safety.

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3PC-072 WHICH MODEL TO ESTIMATE AT BEST THE THEORETICAL OSMOLARITY OF NOMINATIVE PARENTERAL NUTRITION?

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Background and importance Osmolarity is one of the pharmaceutical controls carried out on the nominative parenteral nutrition (NPN) compounded at the hospital pharmacy. A previous validation method for calculation of the theoretical osmolarity of standardised parenteral nutrition (SPN) was extrapolated to NPN. Osmolarity was determined using the Pereira Da Silva equation[1] (PDS) when osmolarity is >1453 mosmol/L, or the manufacturer's data (MD) equation, which is the addition of the different osmolarities of the components. After 2 years, a non-conformity osmolarity rate of 8.9% was observed.

Aim and objectives The aim was to determine the best model to calculate the theoretical osmolarity of the NPN to decrease the non-conformity rate.

Material and methods A retrospective analysis of the NPN osmolarity values was performed on the last 27 months'