Abstracts

Section 3: Production and compounding

3PC-055  ABSTRACT WITHDRAWN

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3PC-057  USING DIFFERENT TECHNIQUES TO PREPARE ORODISPERSCIBLE FILMS IN A HOSPITAL PHARMACY

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Background and importance Fast dissolving orodispersible films (ODF) provide an alternative formulation for patients with swallowing difficulties. Preparing these films is not yet part of the training in pharmacy school and is learned by self-training.

Aim and objectives ODFs were produced using a manual and a technical technique. These were then analysed.

Material and methods All solutions contained hydroxypropylmethylcellulose, glycerol 85%, water and, for quantitative analysis, propranolol hydrochloride (P-HCl). The films were manufactured using two different techniques: (1) dropping solution with a syringe onto a foil: volume 0.1–1 mL; (2) solvent casting: pouring solution into a frame of 1000 m height; those of 1 mL had a gauge of 1.38 mg P-HCl in 4 cm² pieces. It raised linearly to 1.38 mg P-HCl in 4 cm² pieces.

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3PC-058  PHYSICOCHEMICAL STABILITY OF MEROPENEM IN POLYPROPYLENE SYRINGES AT 41.7 MG/ML FOR INTENSIVE CARE UNITS

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Background and importance Meropenem is a broad spectrum antibiotic used to treat severe infections. The maximum dose recommended is 6 g/day. A stability not exceeding 24 hours has been demonstrated by many research teams in different publications. Only two studies were performed at 40 mg/mL in polypropylene syringes with conflicting stability results: 4 hours and 8 hours. Meropenem is a time dependent antibiotic; its continuous administration improves its efficiency.

Aim and objectives The objective of this work was to study the stability of meropenem solutions at 41.7 mg/mL (2 g in 48 mL), diluted in 0.9% sodium chloride (0.9% NaCl) or dextrose 5% (D5W), in polypropylene syringes not protected from light, after preparation and after 4 and 8 hours at 20–25°C.

Material and methods Three syringes for each condition were prepared. At the time of analysis, one sample from each preparation was analysed by high performance liquid chromatography coupled to a photodiode array detector at 297 nm. The method was validated according to the ICH Q2 (R1). Physical stability was evaluated by visual and subvisual inspection (turbidimetry by UV spectrophotometry at 350, 410 and 550 nm, as recommended by the European Consensus Conference). pH values were measured.

Results The method was validated with an R² of 0.9999. The coefficients of variation on repeatability and intermediate precision were ≤ 2%. In 0.9% NaCl, meropenem at 41.7 mg/mL retained more than 90% of the initial concentration after 8 hours. In D5W, after 8 hours of storage, only 86.1%±0.1% of the initial concentration remained and a major colour change was also observed (yellowing). In the D5W, we detected a significant increase in absorbance at 450 and 550 nm in 8 hours. During the stability study, pH values were all between 7.55 and 7.79.

Conclusion and relevance In D5W, meropenem was unstable, with chemical and physical instability. Meropenem was stable at 41.7 mg/mL in polypropylene syringes diluted in NaCl 0.9% for 8 hours. This new stability data allows continuous administration.

REFERENCES AND/OR ACKNOWLEDGEMENTS

Conflict of interest No conflict of interest

3PC-059  PHYSICOCHEMICAL STABILITY OF CETIZOLOZANE/TAZOBACTAM IN POLYPROPYLENE SYRINGES AT 61.5/31.25 MG/ML AND IN ELASTOMERIC DEVICES AT 25.0/12.5 MG/ML

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Background and importance Cefizolozane/Tazobactam is a broad-spectrum antibiotic used in severe infections in intensive care units. The maximum dose recommended is 6 g/day. A stability not exceeding 24 hours has been demonstrated by many research teams in different publications. Only two studies were performed at 40 mg/mL in polypropylene syringes with conflicting stability results: 4 hours and 8 hours. Cefizolozane/Tazobactam is a time dependent antibiotic; its continuous administration improves its efficiency.

Aim and objectives The objective of this work was to study the stability of cefizolozane/Tazobactam solutions at 61.5 mg/mL (2 g in 48 mL), diluted in 0.9% sodium chloride (0.9% NaCl) or dextrose 5% (D5W), in polypropylene syringes not protected from light, after preparation and after 4 and 8 hours at 20–25°C.

Material and methods Three syringes for each condition were prepared. At the time of analysis, one sample from each preparation was analysed by high performance liquid chromatography coupled to a photodiode array detector at 297 nm. The method was validated according to the ICH Q2 (R1). Physical stability was evaluated by visual and subvisual inspection (turbidimetry by UV spectrophotometry at 350, 410 and 550 nm, as recommended by the European Consensus Conference). pH values were measured.

Results The method was validated with an R² of 0.9999. The coefficients of variation on repeatability and intermediate precision were ≤ 2%. In 0.9% NaCl, cefizolozane/Tazobactam at 41.7 mg/mL retained more than 90% of the initial concentration after 8 hours. In D5W, after 8 hours of storage, only 86.1%±0.1% of the initial concentration remained and a major colour change was also observed (yellowing). In the D5W, we detected a significant increase in absorbance at 450 and 550 nm in 8 hours. During the stability study, pH values were all between 7.55 and 7.79.

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Background and importance Ceftolozane/tazobactam is a combination of a new third generation cephalosporin and a β-lactamase inhibitor used to treat infections caused by multidrug resistant Pseudomonas aeruginosa. The usual dose is 3 g/day. To the best of our knowledge, no stability data for ceftolozane/tazobactam at 62.5 mg/mL in polypropylene syringes (PS) for intensive care units or at 25.0/12.5 mg/mL in elastomeric devices (ED) for home administration have been published.

Aim and objectives The objective was to study the stability of ceftolozane/tazobactam solutions at 62.5/31.25 mg/mL, diluted in 0.9% sodium chloride (0.9% NaCl) or dextrose 5% in water (D5W), in PS after storage at 20 °C for 24 hours, the solutions yellowed in the ED. During the stability study, pH values were all between 5.95 and 5.26.

Conclusion and relevance In ED, ceftolozane/tazobactam was unstable at 37 °C in D5W and in 0.9% NaCl. Ceftolozane/tazobactam was stable at 62.5/31.25 mg/mL in PS diluted in 0.9% NaCl or D5W for 48 hours, allowing continuous intravenous infusion.

REFERENCES AND/OR ACKNOWLEDGEMENTS

Conflict of interest No conflict of interest

PHYSICOCHEMICAL STABILITY OF VANCOMYCIN SOLUTION IN ELASTOMERIC SYRINGES AT 37.5 MG/ML IN 0.9% SODIUM CHLORIDE AND DEXTROSE 5% IN WATER

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Background and importance Vancomycin is a time dependent antibiotic of the glycopeptide family. The recommended dose of vancomycin is 30–40 mg/kg/day. For an adult, the maximum daily dose can reach 4 g. In clinical practice, vancomycin is mostly administered by continuous infusion. After hospitalisation, administration of concentrated solutions in elastomeric devices would allow a home care service and a better quality of life for the patient.

Aim and objectives The objective of this work was to study the stability of vancomycin solutions at 37.5 mg/mL (4.5 g in 120 mL of solvent) diluted in 0.9% sodium chloride (0.9% NaCl) or in dextrose 5% in water (D5W), in elastomeric devices, protected from light, at 37 °C for 48 hours.

Material and methods Chemical stability was analysed by high performance liquid chromatography coupled to a photodiode array detector and by pH measurements after preparation, after 24 hours and 48 hours of storage. The method was validated according to the International Conference on Harmonisation Q2 (R1). Three elastomeric devices for each condition were prepared. Physical stability was evaluated by a visual and subvisual inspection at each time of analysis (turbidimetry by UV spectrophotometry at three wavelengths: 350, 410 and 550 nm).

Results For each solvent, solutions at 37.5 mg/mL retained more than 90% of the initial concentration for 48 hours: for 0.9% NaCl (minimum 96.49%±1.12%; maximum 100.94%±0.51%) and for D5W (minimum 102.75%±1.19%; maximum 104.67%±1.15%). During the study, pH values did not decrease after 48 hours in the two solvents. During the subvisu viscosity examination, there was no significant difference between the different analysis times regardless of the solvent used. No colour change was reported during the study.

Conclusion and relevance Vancomycin solutions at 37.5 mg/mL in 0.9% NaCl and D5W were stable in elastomeric devices for 48 hours at 37 °C, protected from light. Home administration for this concentration is possible.

REFERENCES AND/OR ACKNOWLEDGEMENTS

Conflict of interest No conflict of interest

PHYSICOCHEMICAL STABILITY OF CLOxacillin SOLUTION IN POLYPROPYLENE SYRINGES AT 125 MG/ML IN 0.9% SODIUM CHLORIDE AND DEXTROSE 5% IN WATER

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Background and importance Cloxacillin is an antibiotic indicated in methicillin sensitive Staphylococcus aureus infections. The usual curative dosage ranges from 8 to 12 g/day, divided into 4–6 daily administrations. Continuous infusions are frequently used in the intensive care unit. The administration of concentrated solutions in an electric syringe pump would reduce the water supply and the number of daily intakes.

Aim and objectives The objective was to study the stability of cloxacillin solutions at 125 mg/mL diluted in 0.9% sodium chloride (0.9% NaCl) and in dextrose 5% in water (D5W), stored in polypropylene syringes, unprotected from light, at 20–25 °C for 48 hours.

Material and methods Chemical stability was analysed by high performance liquid chromatography coupled to a photodiode array detector and by pH determination after preparation, and after storage for 6, 24 and 48 hours. The analytical method...