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 3 weeks and at 25°C for 1 week, and solutions at 25.0/12.5 mg/mL diluted in 0.9% NaCl or D5W in ED after storage at 37°C for 1 week.

Material and methods  Three preparations for each condition were prepared. At the time of analysis, one sample for each preparation was analysed by a validated high performance liquid chromatography method coupled to a photodiode array detector at 220 nm. 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  Linearity was validated with an R² of 0.9999. The coefficients of variation on repeatability and intermediate precision were <2%. In 0.9% NaCl and D5W, ceftolozane/tazobactam retained more than 90% of the initial concentration after 48 hours in PS. After 24 hours in ED, the concentration of ceftolozane remaining was 91% in 0.9% NaCl and 89% in D5W. A major degradation product, observed during the forced degradation, appeared progressively after 8 hours. At 24 hours in ED, it represented 3.8% of the total peak area. A second degradation product eluted with tazobactam. After 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