Abstract:

AIM: To determine if there are sufficient stability data to confirm appropriate prescribing of antibiotics commonly used in outpatient parenteral antimicrobial therapy (OPAT) in warmer climates.

DATA SOURCES: Four databases were systematically searched using the terms 'beta-lactams', or 'antibiotics', or 'anti-bacterial agents' and 'drug stability' or drug storage' for studies specific to drug stability published between 1966 and February 2018.

STUDY SELECTION: The search strategy initially identified 2879 potential articles. After title and abstract review, the full-texts of 137 potential articles were assessed, with 46 articles matching the inclusion and exclusion criteria included in this review.

RESULTS: A large volume of stability data is available for the selected drugs. Stability data at temperatures higher than 25°C were available for several of the medications, however few drugs demonstrated stability in warmer climates of 34°C or higher. Only buffered benzylpenicillin, cefoxitin and buffered flucloxacillin were found to have stability data supporting OPAT in warmer climates. Sequential data, profiling the drug for an extended period in solution under refrigeration prior to the run-out period at the higher temperatures, are also lacking.

LIMITATIONS: This study was limited by including only peer reviewed articles. There may be further grey literature supporting the stability of some of the drugs mentioned.

CONCLUSION: There are insufficient stability data of antibiotic use in warmer climates. Studies to verify the stability and appropriate use of many antibiotics used in OPAT at standard room temperature and in warmer climates are urgently required. Several drugs in current use in the OPAT settings are lacking stability data.

IMPLICATIONS: Further research in this field is needed to develop structured evidence-based guidelines. Results of this review should be further compared with observed patient outcomes in current clinical practice.

Reference:

Perks, S.J., Lanskey, C., Robinson, N., Pain, T. and Franklin, R. (2020) Systematic review of stability data pertaining to selected antibiotics used for extended infusions in outpatient parenteral antimicrobial therapy (OPAT) at standard room temperature and in warmer climates. European Journal of Hospital Pharmacy. 27(2), p.65-72. doi:

10.1136/ejhpharm-2019-001875.