**INTRODUCTION**

Temocillin (6-α-methoxy ticarcillin) is well known for its resistance to degradation by β-lactamases including most ESBL. It is therefore considered as a sparing drug for carbapenems. Its pharmacokinetic is unknown in haemodialysis patients, which often present a wide pharmacokinetic variability that can lead to subtherapeutic concentrations. Determining temocillin in the serum of these patients is challenged by the fact they receive several other medications and accumulate metabolites that can interfere in the assay.

**AIM**

To develop and validate a new method to analyse temocillin in serum from haemodialysis patients, and to quantify it by an HPLC system.

**RESULTS**

**METHODS**

**A**

Solid phase extraction of temocillin from human serum with Waters Oasis MAX cartridges (sorbert mass 1cc/30mg).

**B**

HPLC analysis coupled to a photodiode array detector (HPLC-UV) RP-18 LiChrospher column (250 x 4 mm, 100Å, 5µm) with isotric elution of 100mM sodium asotate buffer pH 7.1 acetoniite (95.5,v:v); flow rate 1 mL/min; ticarcillin was internal standard.

**Figures:**

- Chromatogram of a representative human serum sample from a haemodialysis patient showing a mean extraction ratio of 56.9% (range 44.8 - 71.1%), and a relative error of the measured concentrations for each QC sample and are plotted with respect to their control samples across the concentration range 5 – 400 µg/mL.
- **RESULTS**
  - **Concentration-time profile for TMO in serum in a haemodialysis patient. Initial (t=0) and post dialysis (t=48) dose was 2g. The beginning (HD on) and end (HD off) of the haemodialysis are marked with horizontal arrows, and haemodialysis periods (4hours) are shown by horizontal bars (HD).**
  - **Accuracy profile of the concentration (µg/mL) of temocillin using a linear regression model. The continuous line is the relative bias, the dashed line is the upper and lower 80% β-expectation tolerance limits, and the dotted lines are the upper and lower FDA acceptance limits. The dots represent the relative error of the measured concentrations for each QC sample and are plotted with respect to their target concentration.**
  - **Linear profile of temocillin in human serum. The dotted lines are the upper and lower FDA acceptance limits, and the dashed lines are the upper and lower 80% β-expectation tolerance limits, both expressed in concentration units.**

**REFERENCES**