**Perception and practice of renal pharmacists on drug dosing in chronic kidney disease patients- A UK-wide survey**

**Background:** Drug dosing inchronic kidney disease (CKD) can be a challenge due to scarcity of information on dosing. Renal pharmacists play a vital role in guiding drug dosing in patients with renal impairment. An evaluation of current practices amongst renal pharmacists when considering dosage adjustment in CKD patient would help identify treatments that are the most likely to benefit from more quantitatively informed dose guidance.

**Objectives:** To investigate the perceptions, challenges and practices amongst renal pharmacists when dosing drugs in CKD patients. To identify the most challenging drugs for dosage adjustment in CKD patients that can be considered candidate drugs for model-based precision dosing in the future.

**Methods**: An anonymous online survey with four different sections was prepared using the online SelectSurvey.NET and hosted by the University of Manchester. The survey questionnaire was pretested in a pilot study among the local group of pharmacists. The survey was sent across to all NHS renal pharmacists in the UK via the Renal Pharmacy Group. Data was analysed for both quantitative and qualitative measures.

**Results**: The survey was completed by 24 out of 170 members of the Renal Pharmacy Group. Out of the 24 pharmacists who completed the survey 20 were band 8, with more than 10 years of experience in renal pharmacy. 75% had a master’s degree in pharmacy with three having added pharmacokinetics training. Advanced CKD (stage 4&5), end stage renal disease and acute kidney injury patients were perceived to be the high-risk groups for drug dosing errors by the majority of the participants. Estimated glomerular filtration rate (eGFR) and body weight were considered to be the most important parameters for guiding dosing in CKD patients. Other parameters which were also considered to be crucial in dose adjustment included: liver function tests (8.5%), previous doses and effectiveness (8.5%), comorbidities (4.3%), albumin levels (4.3%), protein binding (2%), and fluids status (2%). Antibiotics, antivirals and analgesics were the groups of medications that were perceived to need the most careful dosage adjustment in renal impairment. The majority (75%) used the Cockcroft-Gault formula to estimate creatinine clearance to inform drug dosing in CKD patients. In addition to clinical pharmacists, renal physicians (including consultants and trainees) were felt to play a major role in renal drug prescription. The renal drug handbook and summary of product characteristics (SPCs) were the most common references used in renal pharmacy practice.

**Conclusions:** This study has highlighted the perceived challenges on drug dosing in advanced CKD and AKI settings. The study hinted that other vital parameters shown in literature including Cytochrome P450 activity, protein binding property etc. were not considered for optimal dosing in CKD patients in clinical practice. More efforts on translating emerging evidence in CKD into the clinical practice is warranted, this could potentially be achieved through model based precision dosing. We see the need to expand the survey to other groups of healthcare professionals, including renal physicians and practice nurses to seek their opinion on how renal prescribing can be improved.