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P070 -Exploring the Feasibility of Urinary Biomarker Measurement (Nephrocheck®) to Stratify AKI Stage 1 in Medical Assessment Units

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INTRODUCTION:
Acute Kidney Injury (AKI) is a heterogeneous syndrome, with differing causes and outcomes. The majority of cases presenting to medical assessment units (MAU) are AKI stage 1; while many recover rapidly, approximately 20% progress to more severe AKI. A biomarker of kidney injury to stratify patients would allow targeting of AKI interventions to higher risk groups, whilst reducing unnecessarily interventions in those at low risk. Nephrocheck (TIMP2:IGFBP7) is a promising AKI biomarker that is measured in urine; we conducted a 'real-world' feasibility study to determine if urine samples from patients in a MAU setting could be collected and used for Nephrocheck analysis.

METHODS:
In a single centre prospective feasibility study, participants with AKI stage 1 (KDIGO creatinine criteria) were recruited from MAU. The primary outcome was the time between AKI detection and time of urine sample collection. Our feasibility criterion was urine sample collection within 12hrs of AKI detection. Medical details and demographic details of participants were recorded, and clinical outcomes were recorded up until 7 days. This included daily serum creatinine testing to assess progression to AKI stage 2/3. To mimic clinical practice, the study had no dedicated research staff; participant recruitment was performed by two members of the nephrology team, who arranged urine sample collection in conjunction with MAU nursing staff.

RESULTS:
62 participants with AKI stage 1 were recruited, with a mean age of 71±16 years; 21% had pre-existing CKD and 34% had diabetes. The predominant cause of AKI was volume depletion (33 participants, 53%), followed by sepsis (15 participants, 24%). Progression to AKI stage 2/3 occurred in 13 participants (21%).
Urine samples were collected from 57 (92%) participants; 24% of participants had urine samples collected within 12hrs of AKI detection, and 42% within 24hrs. In 26% of cases, it took >24hrs to collect the urine sample. Median time to urine sample collection was 20hrs (IQR 14).
Comparing groups with and without AKI progression, AKI aetiology differed (3% of patients with hypovolaemia progressed, compared with 40% of those with sepsis, $p<0.001$), and baseline creatinine was higher in the progression group (125±46µmol/l vs. 94±41µmol/l, $p<0.001$). Analysis of urinary Nephrocheck is in progress and will be compared between groups.

CONCLUSIONS:
Collection of urine samples for AKI biomarker measurement within 12hrs of AKI detection was not always feasible in a MAU setting, within the constraints of standard working practices and where the majority of patients do not have a urinary catheter. This should be considered in the design of future research studies, or if urinary biomarkers are to be integrated into similar clinical care pathways in future; additional resource to support timely urine sample collection is likely to be required.