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AUGMENTED RENAL CLEARANCE IN CRITICALLY ILL PATIENTS WITH SEPSIS: PREVALENCE, RISK FACTORS AND OUTCOME

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Introduction: Augmented renal clearance (ARC) is a phenomenon where there is elevated renal clearance and defined by creatinine clearance more than 130ml/min. ARC results in changes of the pharmacokinetic and pharmacodynamic of antimicrobial therapy being administered, which may result in its subtherapeutic dose. We evaluated the prevalence, risk factors and outcome of ARC in critically ill patients with sepsis.

Materials and method: This is an interim analysis of single centre, prospective observational study of critically ill patients. Inclusion criteria were patients older than 18 years old with sepsis with plasma creatinine less than 130 µmol/l. Urinary creatinine and flow rate were measured and creatinine clearance (CrCl) calculated.ARC is defined as CrCl of more 130 ml/min. Ultrasonic cardiac output montoring (USCOM) was used to measure cardiac index.

Results: Nineteen patients were analysed so far, of which 11 (57.9%) had ARC. There were no differences age, gender, or category of patients between patients with and without ARC. Baseline APACHE II and SOFA score were similar in the two groups (p=0.47 and 0.06, respectively).There was no difference in the hospital mortality (p=0.86). However, duration of ICU admission amongst survivors was longer in patients with ARC (10 (5-12) vs 4 (3-5) days, p=0.04). Of the 11 with ARC, 7 persisted to day 2. Measured creatinine clearance correlated well with the estimated glomerular filtration rate (r=0.68, p<0.0001), however it did not correlate with cardiac index (r=0.40, p=0.14).

Conclusion: ARC occurs in almost half of critically ill patients with sepsis, and is associated with longer duration of ICU stay. However, there was no difference in the outcome in this small study. Future larger study may be important to investigate this.