Acute kidney injury associated with foot osteomyelitis

The occurrence of acute kidney injury (AKI) associated with foot osteomyelitis has been reported infrequently and only in case report format.[1–3] After noting the frequent occurrence of AKI among patients presenting with foot osteomyelitis at our institution, we endeavoured to estimate the prevalence rate and identify associated factors.

After obtaining institutional review board approval, we reviewed the electronic medical records of all patients presenting to the Michael E DeBakey Veterans Affairs Medical Center with an initial episode of 'probable' or 'definite' foot osteomyelitis[4] between 1 January 2011 and 1 March 2015. Patients with preexisting end-stage renal disease were excluded. During this time period, all patients with foot osteomyelitis were managed by a surgical team using a local treatment algorithm; the operative logs and clinical registry of this team served to identify patients meeting inclusion/exclusion criteria. AKI was defined as an increase in serum creatinine by 0.3 mg/dL or greater within 48 hours of admission or a serum creatinine ≥1.5 times than baseline that is known or presumed to have occurred within the last 7 days.[5] Baseline variables recorded included age, estimated glomerular filtration rate (as per modified Crockcoft-Gault), presence of micro- or macro-albuminuria, signs of systemic inflammatory response syndrome and bacterial isolates identified.

In total, 173 patients met inclusion criteria. The median age was 64 years. Diabetes mellitus was present in 155 patients (89.6%). Stage 3 or higher chronic kidney disease was present in 62 patients (35.8%). A concomitant soft tissue abscess was present in 118 patients (68.2%).

In total, 32 of the 173 patients (18.5%) developed AKI. Eighteen of these patients (56.3%) had AKI at the time of admission, while the remaining 14 patients (43.8%) with AKI met criteria within the subsequent 48 hours after admission. The median increase in serum creatinine among those with AKI was 0.69 mg/dL, a 57% increase over pre-admission baseline.

Logistic regression demonstrated that the development of AKI was inversely correlated with serum albumin (odds ratio 0.54 per mg/dL, p=0.03). A trend toward AKI was observed with the presence of associated soft tissue abscess (odds ratio 2.2, p=0.11). We did not find a significant association between AKI and estimated glomerular filtration rate (p=0.71), micro-albuminuria (p=0.80), macro-albuminuria (p=0.62), or the number of systemic inflammatory response syndrome criteria present at admission (p=0.40).

We suspect most clinicians managing patients with foot osteomyelitis are unaware of the association with AKI. The lack of association between AKI and intuitive risk factors such as baseline chronic kidney disease, presence of macro-albuminuria and the presence of systemic inflammatory response syndrome also makes predicting which patients are at risk more difficult. The high prevalence we are reporting has direct clinical relevance, including management of intravenous medications, selection and dosing of antimicrobial agents and minimisation/avoidance of iodinated contrast media and medications with potential nephrotoxicity. ■

Conflicts of interest

The authors have no conflicts of interest to declare.

Author Contributions

Research idea and study design: BCJ, JBC, NRB; data acquisition: BCJ, NRB; data analysis/interpretation: BCJ, JBC, NRB; statistical analysis: NRB; supervision and mentorship: JBC, NRB. All authors contributed important intellectual content during the manuscript drafting or revision and accept accountability for the overall work by ensuring that questions pertaining to the accuracy or integrity of any portion of the work are appropriately investigated and resolved.

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Testing for blood-borne viruses after a needle-stick injury in patients who lack the capacity to consent

A conclusion that a person lacks decision making capacity is not an off-switch for his or her rights[1]

It is usual practice after a needle-stick injury for the source patient, with consent, to be tested for blood-borne viruses (BBV) to guide the need for HIV prophylaxis and to organise appropriate follow-up of the recipient. If the source patient cannot give consent and therefore is not tested then this uncertainty can heighten the injury-associated anxiety and result in unnecessary prophylaxis for the recipient. General Medical Council (GMC) guidance states that BBV testing for the sole benefit of a healthcare worker is unlawful and may only be performed if it is in the best interests of the patient.[2] The GMC, however, does not clearly define the best interests of the patient in this scenario, so the