

**P0148 Is there a risk of acute kidney injury (AKI) with gentamicin as a surgical antimicrobial prophylaxis (SAP) in orthopaedic patients?**

Natividad Benito\*<sup>1</sup>, Isabel Mur<sup>1</sup>, Luisa Sorli<sup>2</sup>, Aranzazu Gonzalez<sup>1</sup>, Alex Ruiz<sup>2</sup>, Jose Carlos Gonzalez<sup>1</sup>, Xavier Crusi<sup>1</sup>, Sonia Luque<sup>2</sup>, Alba Rivera<sup>1</sup>, Juan Pablo Horcajada<sup>2</sup>, Marisa Moreno<sup>1</sup>, Adrià Font<sup>1</sup>, Lluís Puig Verdí<sup>2</sup>

<sup>1</sup>Hospital de la Santa Creu i Sant Pau, Barcelona, Spain, <sup>2</sup>Parc de Salut Mar, Barcelona, Spain

**Background:** Recent studies suggest avoiding gentamicin as SAP in patients undergoing orthopaedic surgery due to increased rates of AKI compared to regimens without gentamicin. All of these studies were at risk of bias because they were not designed to address this question.

**Materials/methods:** We performed a prospective study of all patients undergoing elective primary total knee and hip replacement at 2 hospitals (Barcelona, 2016). Patients received cefazolin 2g as SAP (in one hospital) or cefazolin 2g + gentamicin 5 mg/kg (CEF-GEN) (in the other). AKI was defined according to KDIGO criteria, using baseline serum creatinine (sCr) as the premeasurement (most recent before surgery) and maximum sCr during the first 7 postoperative days as the postmeasurement. Additionally, sCr was measured 30 days after surgery. We collected information on possible confounding factors: age, gender, comorbidity (Charlson score), blood loss and intraoperative use of vasopressors, and potentially nephrotoxic medication [angiotensin-converting enzyme inhibitors (ACEIs), angiotensin receptor blockers (ARBs), diuretics and non-steroidal anti-inflammatory drugs] for 7 days postoperatively.

**Results:** We included 315 patients [212 female, mean age 71 years]. 196 patients received CEF-GEN. Twenty-five patients (7.9%) developed AKI: 8 (6.7%) patients with cefazolin and 17 (8.7%) with CEF-GEN ( $p=0.535$ ). After adjustment for possible confounding factors, use of gentamicin was not associated with increased AKI ( $p=0.875$ ); variables associated with higher AKI were age, Charlson  $>2$  and use of ACEIs and ARBs. In the CEF-GEN group, the mean glomerular filtration rate (GFR) (CKD-EPI) at baseline was 78.8 mL/min/1.73m<sup>2</sup> and 78.4 thirty days post-surgery (difference -0.4,  $p=0.468$ ). In the global cohort, the baseline GFR was 78.7 and 78.5 in the 30-day measurement. The difference between the 2 determinations (-0.2) was not associated with use of gentamicin after adjusting for possible confounding variables ( $p=0.364$ ). Variables associated with the change in the GFR were baseline GFR and use of ACEIs.

**Conclusions:** The use of single-dose gentamicin and cefazolin as SAP in patients undergoing orthopaedic surgery is not associated with a higher risk of the development of AKI than the use of cefazolin alone. For patients receiving gentamicin, the GFR at 30 days post-surgery does not change with respect to baseline.