Safety of Ketorolac in Primary THAs: An Analysis of over 7000 Cases

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INTRODUCTION:
Ketorolac is commonly utilized perioperatively in primary total hip arthroplasties (THAs), either intravenously (IV) or via local infiltration analgesia (LIA). While effective for pain control, concerns remain regarding its potential to cause acute kidney injury (AKI), particularly in patients with chronic kidney disease (CKD). This study evaluated the association between perioperative ketorolac administration and postoperative AKI, stratified by baseline renal function and administration route.
METHODS:
We retrospectively analyzed 7212 inpatient THAs performed between 2011-2021. AKI was defined according to KDIGO criteria. Multivariable logistic regression evaluated the association between perioperative ketorolac administration and in-hospital AKI, adjusting for demographic and clinical covariates. Subgroup analyses were conducted for patients with (15%) and without (85%) preexisting CKD. Ketorolac was administered perioperatively in 34% of cases (25% LIA, 7% IV, 3% both) with a median cumulative dose of 30 mg (range, 15–90 mg). Mean age was 66 years, mean BMI 31kg/m², and 52% were female.
RESULTS:
AKI occurred in 3.4% of cases. Ketorolac use was not associated with increased AKI risk (OR 0.7, $p=0.06$), regardless of administration route (all OR <1; all $p>0.05$). CKD was an independent risk factor for the development of AKI (OR 4.1; $p<0.001$). In patients without CKD, ketorolac use was associated with a decreased risk of AKI (OR 0.6; $p=0.02$), and not associated with an increased or decreased risk in those with CKD (OR 1.1; $p=0.84$). Additional independent risk factors for AKI included intraoperative transfusion (OR 4.5; $p<0.001$), new onset atrial fibrillation (OR 3.0; $p<0.001$), history of hypertension (OR 2.3; $p<0.001$), male sex (OR 1.4; $p=0.04$), and elevated BMI (OR 1.04 per unit-increase, $p<0.001$).
DISCUSSION AND CONCLUSION:
Perioperative ketorolac use does not elevate the risk of postoperative AKI, regardless of administration route. Risk factors for AKI include preexisting CKD, male sex, elevated BMI, need for intraoperative transfusion, and history of hypertension.