The method of GFR determination impacts the estimation of cisplatin eligibility in patients with advanced urothelial cancer.

Abstract:
To determine GFR with different methods in patients with first-line chemotherapy for advanced urothelial cancer (UC) and to evaluate the impact of these methods on the estimation of cisplatin eligibility. A database was built retrospectively containing all patients receiving first-line chemotherapy for UC between 2001 and 2012 in one German high-volume center. GFR was calculated with the methods by Cockcroft-Gault (CG), MDRD and CKD-EPI. Measurements of creatinine clearance with timed urine collections were registered. A total of 166 patients were included. All methods of renal function determination yielded consistent results in terms of cisplatin eligibility for 134 patients (80.7%) and disagreeing results for 32 patients (19.3%). Twenty-two of these 32 patients with borderline GFR received cisplatin-based chemotherapy. Fifteen of these 22 patients completed at least three cycles. The mean GFR in the mentioned 32 patients was 51.3, 56.2 and 54.2 ml/min with the method by CG, MDRD and CKD-EPI. Three, ten and four patients were estimated cisplatin-eligible with either method. There was a good correlation between MDRD and CKD-EPI ($r^2 = 0.92$). CG tended to underestimate GFR compared to both MDRD and CKD-EPI. Measurements of creatinine clearance showed a wide distribution in comparison with MDRD ($r$
The method used to determine GFR influences the estimation of cisplatin eligibility in a subset of UC patients. MDRD and CKD-EPI formulas seem most valuable, while CG tends to underestimate renal function. Using a strict cutoff of 60 ml/min may unnecessarily preclude cisplatin in some patients.