Disclosure belangen spreker

(potentiële) belangenverstrengeling	~~Geen~~ / **<u>Zie hieronder</u>**
Voor bijeenkomst mogelijk relevante relaties met bedrijven	Bedrijfsnamen
• *<u>Sponsoring of onderzoeksgeld</u>* • ~~Honorarium of andere (financiële) vergoeding~~ • ~~Aandeelhouder~~ • ~~Andere relatie, namelijk …~~	• SkylineDx, Rotterdam

Non-steady-state serum creatinine values complicate GFR estimation in 30% of emergency department patients

UMC Utrecht

M.S.A. Niemantsverdriet[1, 2], T.T. Pieters[3], I.E. Hoefer[1], M.C. Verhaar[3], W.W. van Solinge[1], W.M. Tiel Groenestege[1], S. Haitjema[1], M.B. Rookmaaker[3]

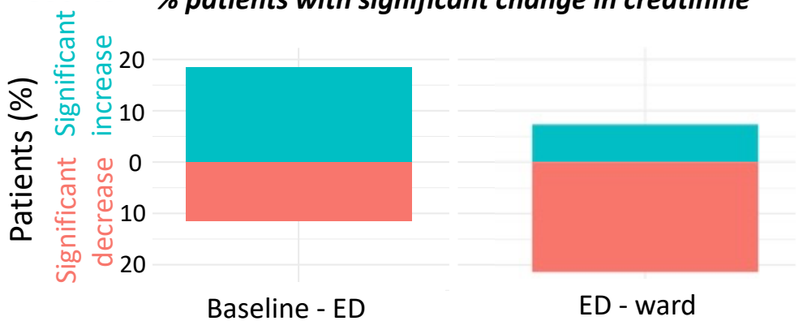
[1]Central Diagnostic Laboratory, University Medical Center Utrecht, Utrecht University, Heidelberglaan 100, 3584 CX Utrecht, The Netherlands
[2]SkylineDx, Lichtenauerlaan 40, 3062 ME Rotterdam, The Netherlands
[3]Department of Nephrology and Hypertension, University Medical Center Utrecht, Utrecht University, Heidelberglaan 100, 3584 CX Utrecht, The Netherlands

Introduction

Assessment of renal function at the emergency department (ED) is important for evaluating organ function and dosing of renally excreted drugs. Serum creatinine based formulas like CKD-epi are often used to estimate glomerular filtration rate (GFR) as proxy for renal function. However, these formulas estimate GFR in patients with a steady-state serum creatinine value, a condition that is often not met at the ED. **In this study we evaluated the prevalence and extent of fluctuating serum creatinine concentrations at the ED.**

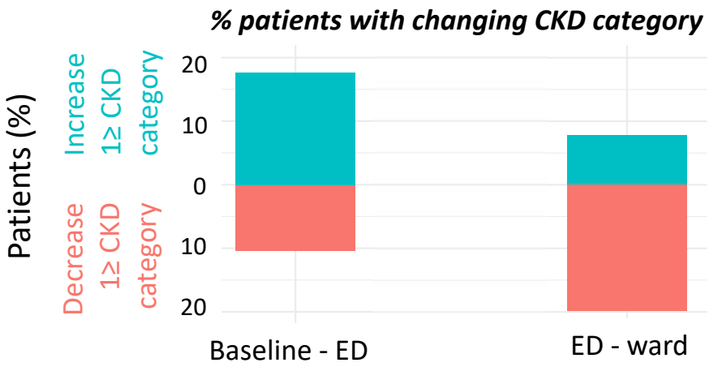
Results

% patients with significant change in creatinine



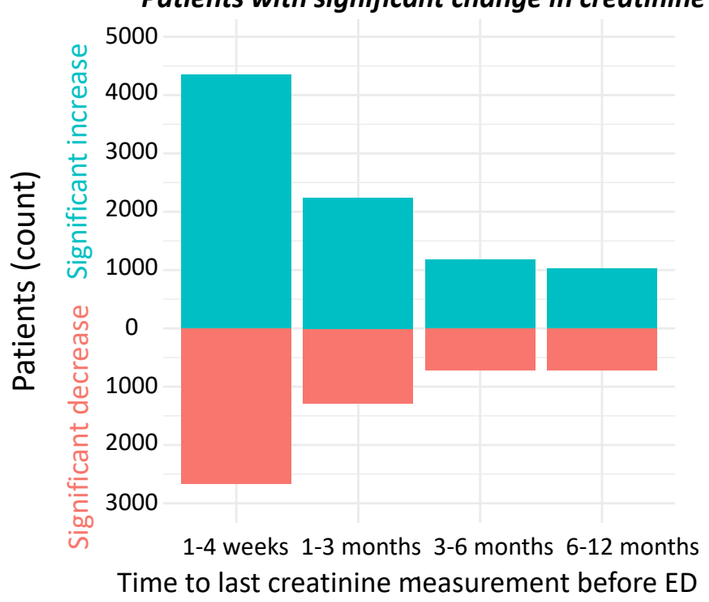
30% of the patients at the ED showed a significant change between baseline creatinine and creatinine at ED, similar results where found between creatinine at ED and creatinine during admission.

% patients with changing CKD category



27% of the ED patients changed at least one CKD category between baseline and ED whereas 27% at least one CKD category between ED and first creatinine during admission.

Patients with significant change in creatinine

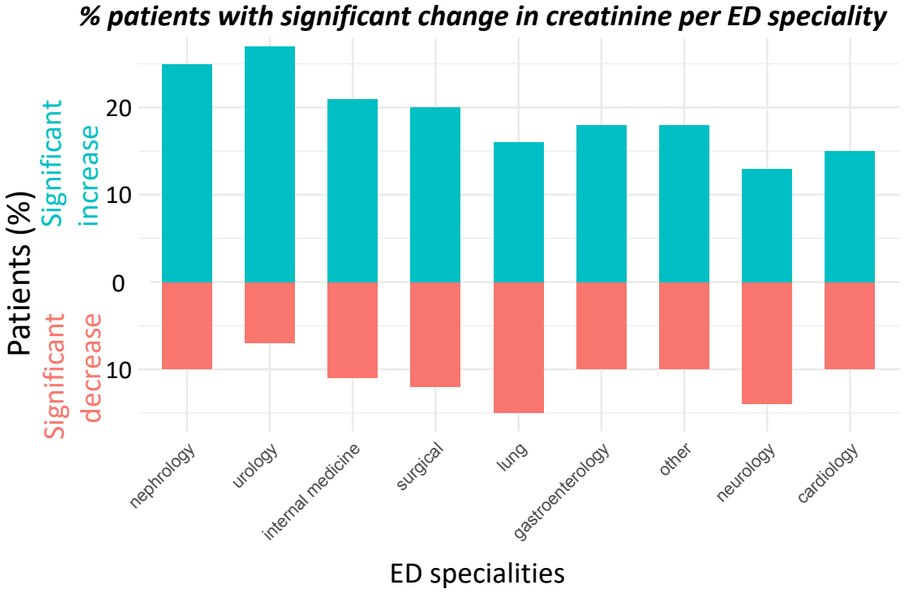


Significant changes in serum creatinine were more frequent when baseline creatinine was determined closer to ED presentation.

Methods

We evaluated all ED visits at the UMCU between 2012 and 2019 of adult patients in whom serum creatinine concentration was assessed (SCr-ED). Serum creatinine values were compared to pre-admission values (SCr-BL) and, in case of hospitalization, the first creatinine concentration after admission (SCr-H1). Significant fluctuation in SCr was defined as exceeding the Reference Change Value. Ad drug dosing is often based on GFR categories as defined by the KDIGO, also GFR categories were determined at the three timepoints.

% patients with significant change in creatinine per ED speciality



ED specialities did not show difference between significant increasing (blue) or decrease (red) between baseline and ED.

Conclusions

- **One third of the ED visits show a non-steady-state plasma creatinine concentration**
- **Similar incidence of non-steady-state SCr across all different specialities**
- **Automatically calculated eGFR by CKD-EPI at the ED should be interpreted with great caution when assessing kidney function**