

Audit on Early Detection and Primary Prevention of Chronic Kidney Disease in patients Admitted to the Healthcare of the Elderly Wards in a District General Hospital in UK

Philip Goodall, Anoja Rajapakse

Department of Geriatrics, King's Mill Hospital,
Sherwood Forest Hospitals NHS Foundation
Trust, UK

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Correspondence to:

Dr. Anoja Rajapakse,
Department of Geriatrics,
King's Mill Hospital, Sherwood Forest
Hospitals NHS Foundation Trust,
Sutton-in-Ashfield,
Nottinghamshire, UK.
E-mail: anoja.ilangas@gmail.com

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DEAR EDITOR,

Early identification and prevention of Chronic Kidney Disease (CKD) has been emphasized as an area of importance by the National Service Framework for Renal Services of the UK.^[1] Over 2% of the total National Health Service (NHS) UK budget is spent on renal replacement therapy for those with established renal failure,^[2] and on an average 30% of patients with advanced renal failure are referred late to the appropriate nephrology services from both primary and secondary care, having a massive impact on morbidity and mortality.^[3] In 2008, National Institute for Health and Care Excellence (NICE) released guidance on early detection and management of CKD in adults in primary and secondary care.^[4] The aim of this audit was to assess the adherence of current hospital practice with regard to the 2008 NICE guidelines regarding CKD, identifying areas that need to be improved, in Kings Mill Hospital, Sherwood Forest Hospitals NHS Foundation Trust, UK.

Data was prospectively collected from 100 patients on the Healthcare of the Elderly

wards as well as the Emergency Admissions Unit over the months of February and March 2012. The audit measures and standards used are listed in Table 1. The mean age of patients was 71 years. A total of 14 patients had a known history of chronic kidney disease. Of the 100 patients, 74% had one or more risk factors, the most common being hypertension (74%), diabetes (24%), and ischemic heart disease (23%). Most of the patients had one risk factor (31%), 2 risk factors were seen in 28 patients, 3 risk factors were seen in eight patients, 4 risk factors were seen in six patients, and one patient had 5 risk factors. All patients had their blood pressure (BP) documented within 4 h of admission. The target BP was achieved by day 3 of admission in 71% patients.

Patients' medications were reviewed to note whether they were taking any medications with known nephrotoxic side-effects. Patient receiving angiotensin converting enzyme inhibitors (ACEi), angiotensin receptor blockers (ARB), non-steroidal anti-inflammatory drugs (NSAIDs), and diuretics were noted. Of the 100 patients, 59 were taking 1 or more nephrotoxic medications. The majority

Table 1: Audit standards (based on NICE guidance)

Audit measures and standards

Identification of risk factors: Hypertension, diabetes mellitus, ischemic heart disease, chronic heart failure, peripheral vascular disease, strokes, obstructive uropathy, calcular renal disease, benign prostatic hypertrophy and SLE; offer CKD testing to these patients

BP on admission within 4 h, and target BP achieved on day 3 according to co-morbidities, i.e., CKD<140/90 mmHg, DM+CKD<130/80 mmHg, DM+ACR<130/80 mmHg

Identification of nephrotoxics

Urine dipstick documented within 24 h; culture as appropriate

If significant proteinuria PCR/ACR calculated (significant proteinuria defined as 1+ or greater on dipstick)

Appropriate discharge documentation for follow-up arrangements with GP. (renal referral recommended if eGFR was below 30 ml/min with no evidence of malignancy, progressive drop in eGFR>5 ml/min/year, PCR>45 with microscopic hematuria, a PCR>100, suspected systemic illness, refractory hypertension, anemia with a hemoglobin of <11 g/L with no other cause or persistent abnormal potassium, calcium or phosphate levels

DM=Diabetes mellitus, ACR=Albumin creatinine ratio, PCR=Protein creatinine ratio, eGFR=Estimated glomerular filtration rate, CKD=Chronic kidney disease, GP=General practitioner, SLE=Systemic lupus erythematosus, NICE=National Institute for Health and Care Excellence

of patients using the potential nephrotoxic drugs received a diuretic (40%) or ACEi (35%).

Urine dipsticks were documented in 64 patient's notes, with 36 patients not having any urine dipsticks performed or formerly documented or acknowledged. Of the 64 patients who had recorded urine dipsticks, 51 patients (80%) had the urine dipsticks performed within 24 h of admission. The urine dipsticks were positive for either blood, leucocytes, nitrites, and protein in 47 patients. Infection was ruled out in all patients who had positive leucocytes or nitrites (39 patients, 61%) with all samples being sent within 24 h. In eight patients, the urine was not sent for culture as they were not positive for leucocytes or nitrites and therefore not deemed to be positive for infection. Significant proteinuria (1 + protein or greater) was noted in 37 patients; nonetheless a Protein: Creatinine ratio/Albumin: Creatinine ratio (PCR/ACR) was not performed in any of these patients. A PCR was, however, performed in one patient, but no urine dipsticks were recorded for the same patient.

With regard to appropriate discharge documentation and follow-up, nine patients had appropriate follow-up documented and arranged in their discharge letters with either repeat urea and electrolytes (UEs) with their general practitioner (GP), renal ultrasound, or clinic appointments. However, 32 patients did not have the necessary follow-up arrangements documented or arranged where it was deemed necessary. The

remaining 61 patients had no follow-up indicated. Renal ultrasound was indicated for patients to exclude obstructive uropathy and in patients with significant hematuria and proteinuria.

We achieved high levels of compliance with regards to BP control achieving 100% documenting patients BP within 4 h of admission and with 71% of patients achieving adequate BP control by day 3 of admission. Regarding urine dipsticks, only 64% of patients had urine dipsticks documented. However, 100% of these were sent within 24 h to rule out a possible infection, and 80% were documented within 24 h of admission. The areas where we failed to achieve an adequate compliance were with regard to further analysis of proteinuria with 0% of patients having a PCR/ACR performed where they were noted to have a significant proteinuria. Another area, which was below average, was regarding the appropriate follow-up and referrals on discharge of patients. Only 22% of patients had appropriate follow-up recorded where it was deemed necessary.

It is likely that audited areas such as documentation of urine dipsticks were lower because of poor documentation, as opposed to the fact they were not performed at all. This highlights the need for greater awareness of documentation. This audit highlights the potential need for a trust guideline with regard for the assessment of CKD on admission. This could take the form of a pro forma integrated into the Trust clerking sheets, which highlights the pivotal points of the NICE

guidelines such as risk factors, medication review, urine dipsticks, and trend of renal function. This could also act as a trigger for the awareness of further investigation of significant proteinuria with ACR/PCR as appropriate which currently is not been done. This audit also serves to highlight the need for a greater awareness of appropriate follow-up and referrals regarding management of CKD and documentation of these arrangements in patients discharge summaries. Further recommendations would be to re-audit in 1 year to measure compliance, and further audit with regard to appropriate follow-up to urology, renal services, and out-patient renal ultrasound as appropriate.

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