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# Contrast Induced Nephropathy: Assessing the True Incidence of AKI Related to CT Scans with and without Contrast

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**BACKGROUND:** Contrast-induced nephropathy (CIN) is the acute decline in renal function 48-72 hours after contrast media administration. Incidence rates vary in the literature. Since 100,000 CT scans are performed annually within one health authority (HA) in Canada, there is interest in implementing a standardized CIN prevention protocol (CIN-PP), to decrease risk of CIN.

**METHODS:** We evaluated the efficacy of a pilot CIN-PP by measuring the incidence of CIN within the HA at baseline and after PP implementation. During two time periods, pre and 3 mo post CIN-PP implementation, all hospitalized patients who had 2 serum creatinine (sCr) values within a 7 day period pre and post CT scan, with and without contrast were included in the sample. Data included: patient (pt) demographics, type of CT scan, and sCr values. CT scans were excluded if they involved an extremity or if a pt received more than one scan within a 7 day period. Of 4919 scans done, there were 325 CT scans from the pre-protocol phase in Dec. 2012, and 518 CT scans from the post-protocol phase in Oct. 2013 meeting inclusion criteria. The primary outcome was the incidence of CIN, defined as a sCr increase of >26.5 mmol/L within 7 days post-CT scan.

**RESULTS:** The mean age of the population was 70y, mean eGFR at baseline =70. Baseline and post-protocol implementation CIN incidence was similar (10.9 vs 10.0%;p=0.64). We evaluated the proportion of pts who received IV contrast in both time periods who had 2 sCr values; more pts post CIN-PP had 2 sCr values (73.6 vs 79.8%;p=0.14). The incidence of CIN did not vary between those who did and did not receive contrast in either time period.

**CONCLUSIONS:** The application of robust research methodology to the CIN-PP quality improvement initiative raises questions as to the value proposition of CIN-PP. Further understanding of factors contributing to AKI in those receiving CT scans, irrespective of contrast may guide future targeted interventions.