**Audit on the prevention of post-contrast acute kidney injury post contrast-enhanced CT**

**Descriptor**

Audit tool to ensure all patients are accurately risk assessed prior to contrast-enhanced computerised tomography (CECT) and renal protection regimens are implemented where appropriate.

**Background**

Iodine-based contrast media (ICM), commonly used in contrast-enhanced computerised tomography (CECT), can lead to significant adverse drug reactions (ADRs), the most common of which is post-contrast acute kidney injury (PC-AKI).[1] Recent guidelines on the prevention of PC-AKI, including the RCR endorsed Royal Australian and New Zealand College of Radiologists’ (RANZCR) 2018 Iodinated Contrast Guidelines, includes updates to many key recommendations.[2] This audit can help ensure that local practices are based on current evidence.

**The Cycle**

**The standard**

Prior to all non-emergency CECT: [2]

1. The patient should be assessed for known risk factors (kidney disease, diabetes, taking metformin).
2. An up-to-date estimated glomerular filtration rate (eGFR) is required only if any risk factors are present. eGFRs are considered up-to-date as long as clinical judgement finds it unlikely that the renal function has deteriorated significantly since then.
3. If eGFR <30 or <45 and there is acutely deteriorating renal function, consider renal protection (first line = pre- and post-procedural 0.9% IV saline).
4. Cease metformin 48h before CECT if eGFR <30 or is unknown or have deteriorating renal function.
5. Non-anuric patients (producing >100mL/day urine) on dialysis requires a consultation between their referring professional, renal physician, and/or radiologist.
6. Do not offer dose reduction.

**Target**

100% compliance for all standards.

**Assess local practice**

**Indicators**

% of records meeting the standards.

**Data items to be collected**

For each record:

1. Whether the patient was assessed for risk factors
2. Whether an up-to-date eGFR was provided in patients with risk factors present
3. If an eGFR was obtained for the CECT, whether this was appropriate (i.e. patient had risk factors)
4. Was renal protection given. If yes, was this appropriate (i.e. met eGFR requirements) and was the recommended first line strategy followed
5. If patient was on metformin, was this ceased in time. If yes, was this appropriate.
6. If the patient was non-anuric and on dialysis, did a consultation between their referring professional, renal physician, and/or radiologist occur and have been documented in patient notes and radiology system
7. Whether dose reduction was offered.

**Suggested number**

Retrospective review of the patient notes and radiology records of 30 each consecutive outpatients and inpatients attending for non-emergency CECT.

**Suggestions for change if target not met**

* Ensure the department develops a written renal protection protocol for CECT based on up-to-date guidelines (i.e. RCR endorsed RANZCR 2018 guidelines). [2]
* Implement a checklist of recommended RFs as a part of the electronic request, which when filled in will advise whether the patient requires an up-to-date eGFR prior to ICM administration.
* Engage local nephrology team.
* Engage and inform referrers from primary and secondary care about the protocol change.

**References**

1. McDonald JS, McDonald RJ, Comin J, et al. Frequency of acute kidney injury following intravenous contrast medium administration: a systematic review and meta-analysis. Radiology 2013;267(1):119–28. <https://doi.org/10.1148/radiol.12121460>.
2. RANZCR. The Royal Australian and New Zealand College of Radiologists (2018) Iodinated Contrast Media Guideline 2018.

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