# Incidence of Acute Kidney Injury (AKI) Following Administration of High Dose Cisplatin (>70 mg/m2)

**Descriptor:**

Acute kidney injury is a common complication of Cisplatin treatment and is reported in 20-30% of patients. NICE guidance recommends identification of patients are at high risk of kidney injury and recommends screening of these patients for early detection.

**Background:**

Acute Kidney Injury is a common complication of Cisplatin chemotherapy. Hydration immediately before and after treatment has been shown to reduce the incidence of renal toxicity but the mechanisms are not full understood. The optimum supportive fluid regimen is unknown. Many factors may influence the development of AK and may be related individual patient or delivery risk factor, for example inpatient and outpatient protocols for delivery may be successful but are associated with differing risks. A urine output of >100mls/hour is recommended prior to Cisplatin administration but this can be different to measure in the outpatient setting whilst long hydration schedules for inpatient delivery may be subject to delays in delivery due to reductions in staff to patient ratios out of normal day time working hours. It is important for oncology centre to establish high risk groups for AKI to reduce any avoidable harm and screen for AKI.

## The Cycle

**The standard:**

Incidence of Grade 1-3 AKI following administration high dose cisplatin (>70 mg/m2) where a serum creatinine measurement within 21 days after treatment is available for assessment should be less than 20% of all delivered cycles or as local standard agreed.

**Target:**

All cycles of high dose cisplatin (actual delivered dose >70 mg/m2) under the care of the oncology centre,  where a serum creatinine measurement within 21 days after treatment is available for assessment, should be included in the audit.

## Assess local practice

**Indicators:**

• AKI should be graded as Kidney Disease Improving Global Outcomes (KDIGO) grading as recommended in NICE guidance CG 169. Serum creatinine measurement after each cycle should be compared to baseline serum creatinine measured before cycle 1 for grading of AKI

• Dose of Cisplatin should be taken as the actual dose of Cisplatin in mg/m2 delivered in each cycle and not the starting dose i.e. if dose reductions after cycle 1 reduce dose administered below75mg/m2 then those cycles where dose is less than 75mg/m2 are not included in the audit

**Data items to be collected:**

• Baseline serum creatinine (mmol/L) prior to cycle 1

• Serum creatinine (mmol/L) after each cycle within 21 days of treatment

• Dose of Cisplatin (mg/m2) for each cycle

• Cycle number

• Hydration regimen

• Inpatient or outpatient delivery

• Age of patient

• Performance status

• Any additional data items of local interest e.g. urine output before treatment, time of treatment delivery, tumour site treated, treatment intent

**Suggested number:**

All cycles of high dose cisplatin (>70mg/m2) where a serum creatinine measurement from within 21 days after treatment is available for assessment over a 3 month period.

**Suggestions for change if target not met:**

• If audit standard is not met

• Review high risk sub-groups. Ensure high risk subgroups have an early screen for AKI following cycle 1, ie 5-7 days after Cisplatin delivery , so dose reductions can be made when appropriate

• Review hydration schedule

• Review management of nausea and vomiting

• For inpatients assess time of treatment delivery and ensure that delays are not occurring between hydration and cisplatin delivery. Ensure appropriate staff are available during treatment delivery periods

**References:**

1. D Portilla et al. Cisplatin Nephrotoxicity:UpToDate Sept 2013.  [www.uptodate.com/contents/cisplatin-nephrotoxicity](http://www.uptodate.com/contents/cisplatin-nephrotoxicity).
2. National Institute of Clinical Excellence Clinical Guidance August 2013 CG 169: [www.nice.org.uk/cg169](http://www.nice.org.uk/cg169)

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**Published Date:**

Wednesday 3 June 2015

**Last Reviewed:**

Tuesday 17 April 2018