



Royal Perth Hospital
Nurse Practitioner – Nephrology
CLINICAL PRACTICE GUIDELINE (CPG)
PREVENTION OF CONTRAST INDUCED
NEPHROPATHY (CIN)



Scope		Outcomes
Nurse Practitioner	<ul style="list-style-type: none"> • Patients with CKD (pre-dialysis) who require the administration of radio-contrast agents 	Pre-dialysis patients identified for CIN precautions
Exclusion Criteria	Refer to RMO in following situations: <ul style="list-style-type: none"> • Previous adverse reaction to contrast 	Refer to RMO
Initial assessment and interventions		
Primary Survey / History	<ul style="list-style-type: none"> • Medical History <ul style="list-style-type: none"> ○ Previous adverse reaction to contrast • Medication <ul style="list-style-type: none"> ○ Nephrotoxic drugs (e.g.: NSAIDs, diuretics, ACE-inhibitors, acyclovir, aminoglycosides, amphotericin, antineoplastics, cyclosporin, lithium, methotrexate, vancomycin) • Risk Factors: <ul style="list-style-type: none"> ○ CKD stage 3-5 ○ Diabetes ○ Age > 70 years ○ Asthma ○ Cardiac failure ○ Hypertension ○ Gout ○ Dehydration 	Identify patients who are at high risk of developing CIN
Working diagnosis and Investigations		
Pathology	<ul style="list-style-type: none"> • Pre and post procedure bloods: <ul style="list-style-type: none"> ○ Urea and Electrolytes (UEBG) (if not recently performed and 48 hours post contrast) 	Abnormal pathology will be identified
Interpretation of results (diagnostic features) and management decisions		
Diagnosis	<ul style="list-style-type: none"> • Interpretation of post procedure bloods • Identification and management of medication increasing risk of CIN: <ul style="list-style-type: none"> ○ NSAIDs ○ ACE Inhibitors/ARBs ○ Diuretics ○ Metformin 	Measurement of renal function post procedure Discuss with relevant Nephrology Consultant/Registrar



Royal Perth Hospital
Nurse Practitioner – Nephrology
CLINICAL PRACTICE GUIDELINE (CPG)
PREVENTION OF CONTRAST INDUCED
NEPHROPATHY (CIN)



Patient Education		Outcomes
Patient Education	<ul style="list-style-type: none"> • Verbal instructions from Nephrology NP • Written patient information brochure 	Ensure patient understands problem, treatment and follow up
Medication Education	<ul style="list-style-type: none"> • Verbal instructions from Nephrology NP • Written information as per the hospital pharmacy on medications dispensed 	Patient will be informed
Medications		
All medication will be stored, labelled and dispensed in accordance with hospital policy and relevant legislation		
Intravenous fluids	<ul style="list-style-type: none"> • Sodium Chloride 0.9% <ul style="list-style-type: none"> ○ 1000ml @ 100ml/hour <p>Alternatively:</p> <ul style="list-style-type: none"> • Sodium bicarbonate/glucose Infusion <ul style="list-style-type: none"> ○ 1000ml 5% Dextrose; remove 154ml add 154ml Sodium Bicarbonate 8.4% = 154mEq/L @ 100ml/hour • Patients should receive hydration starting 2 to 4 hours before receiving contrast, during the radiographic procedure, and continuing 4 to 6 hours afterward 	Prevent CIN In consultation with Consultant/Registrar to identify preferred IV hydration
Medications	Acetyl Cysteine orally 600mg bd for 2/7 (day before procedure and day of procedure)	Prevent CIN
Clinical audit evaluation strategies		
KPIs	<ul style="list-style-type: none"> • Western Australian Nephrology Database (WAND) 	Quality Improvement



Royal Perth Hospital
Nurse Practitioner – Nephrology
CLINICAL PRACTICE GUIDELINE (CPG)
**PREVENTION OF CONTRAST INDUCED
NEPHROPATHY (CIN)**



References

Australian Medicine Handbook

<http://www.amh.net.au.rplibresources.health.wa.gov.au/online/view.php?page=index.html>

Caring for Australasians with Renal Impairment Guidelines 2000:

http://www.cari.org.au/dialysis_va_list_published.php

National Kidney Foundation K/DOQI Guidelines 2000:

http://www.kidney.org/professionals/kdoqi/guidelines_updates/doqi_uptoc.html#va

MIMS Abbreviated Product Listing: MIMS Online Data Version: November 2009

Royal Perth Hospital. Department of Diagnostic & Interventional Radiology - Iodinated Contrast and Renal Impairment

Rudnick, M.R. and Tumlin, J.A. 2009. Prevention of Contrast Induced Nephropathy

<http://www.uptodate.com>

Rudnick, M.R., Kesselheim, A. and Goldfarb, S. 2006. Contrast Induced Nephropathy: How it develops, how to prevent it. *Cleveland Clinical Journal of Medicine* 73(1) p 75-87.



Royal Perth Hospital
Nurse Practitioner – Nephrology
CLINICAL PRACTICE GUIDELINE (CPG)
**PREVENTION OF CONTRAST INDUCED
NEPHROPATHY (CIN)**



Authorship and endorsement

(This Guideline has been developed in collaboration with the WADH Review Committee)

This CPP was written by:

Monique Sandford
Nephrology Nurse Practitioner
Royal Perth Hospital

_____ Date _____

Jane York
Nephrology Nurse Practitioner
Royal Perth Hospital

_____ Date _____

This CPP has been reviewed and is endorsed by:

Dr. Kevin Warr
Head of Dept, Nephrology
Royal Perth Hospital

_____ Date _____

Sharon Ho
Senior Pharmacist
Royal Perth Hospital

_____ Date _____

Chair of Drug Sub Committee
Royal Perth Hospital

_____ Date _____

Key to terms

ACE – Angiotensin Converting Enzyme
ARB – Angiotensin Receptor Blocker
CKD – chronic kidney disease
KPI – key performance indicator
NP – nurse practitioner
NSAID – Non-steroidal anti-inflammatory drug
RMO – registered medical officer

Date written: 8th January 2010
Reviewed:

Review date: