Acute Kidney Injury - potentially problematic drugs and actions to take in Primary Care

	Effects on renal/fluid/electrolyte physiology	Change in the side effect profile when renal function is reduced	Action in presence of AKI
Analgesics			
NSAIDs / COX II inhibitors	Altered haemodynamics within the kidney leading to underperfusion and reduced glomerular filtration Acute interstitial nephritis (rare)		Avoid these agents in people at high risk of AKI
Opioid analgesics		Accumulation of active metabolites in AKI (especially morphine, pethidine and codeine) – increased incidence of CNS side effects & respiratory depression	Avoid long acting preparations. Reduce dose and frequency Use opiates with minimal renal excretion e.g. fentanyl, oxycodone, hydromorphone, tramadol
Pregabalin & Gabapentin		Accumulation leading to an increase in CNS side effects	Reduce dose
Cardiovascular Medications			
Antihypertensives (including Ca-channel blockers, α-blockers, β-blockers, etc)	Hypotension may exacerbate renal hypo-perfusion	Risk of bradycardia with Beta Blockers	Consider withholding / reduce dose depending on blood pressure
ACEI / ARBs / Aliskiren	Hypotension Hyperkalaemia		In some situations, e.g. heart failure continuing them might actually be helpful In AKI consider with holding
Diuretics including Thiazide & Loop Diuretics	Volume depletion Acute interstitial nephritis (rare)	Loop diuretics (furosemide & bumetanide) preferred as thiazides less effective if GFR < 25ml/min. However thiazides can potentiate the effects of loop diuretics	If volume depleted, consider with holding
Potassium sparing diuretics amiloride, eplerenone and spironolactone	Volume depletion Hyperkalaemia		Stop if AKI
Statins	May cause AKI if rhabdomylolysis is present	Increased risk of rhabdomyolysis	Stop if AKI due to rhabdomyolysis. Stop if patient develops unexplained / persistent muscle pain
Digoxin	Hyperkalaemia	May accumulate in AKI leading to bradycardia, visual disturbances, mental confusion	Reduce dose Monitor potassium and drug levels

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Direct Oral Anticoagulants		May accumulate leading to increased risk of bleeding. Routine blood testing does not detect those people at high risk of bleeding	Consider withholding, particularly agents with high renal clearance.
Drugs to treat infection			
Aciclovir	Crystal nephropathy Acute interstitial nephritis (rare)	Drug accumulates in reduced renal function leading to mental confusion, seizures	Reduce dose Encourage patient to drink plenty
Trimethoprim And co-trimoxazole	Increased risk of hyperkalaemia (especially in combination with spironolactone or ACEI/ARB) Interferes with tubular secretion of creatinine leading to a rise in serum creatinine without a true change in GFR	Accumulation increases risk of hyperkalaemia (particularly with high doses), nausea and vomiting	Avoid or reduce dose (particularly if patient is already taking an ACEI, ARB or spironolactone)
Phenytoin	Acute interstitial nephritis (rare)	Risk of phenytoin toxicity if patient has low serum albumin levels	Monitor levels. Correct phenytoin levels for uraemia and low serum albumin
Diabetes medications			
Hypoglycaemic Drugs		Accumulation in AKI may increase risk of hypoglycaemia	Avoid long acting preparations. Monitor blood glucose levels & reduce dose if necessary
Metformin		Risk of lactic acidosis increased Accumulation leading to hypoglycaemia	Avoid if GFR < 30 ml/min
Other agents			
Colchicine		Diarrhoea / vomiting causing hypovolaemia	Use lower doses or consider steroids. Do not use NSAIDs for gout
Lithium	Can cause nephrogenic diabetes insipidus Very rarely it is associated with neuroleptic malignant syndrome.	Accumulation increases risk of side effects Kidney impairment exacerbated in hypovolaemia and in combination with ACE inhibitors / ARB / NSAIDs	Avoid where possible Monitor lithium and electrolyte levels Encourage patient to drink plenty.