

Prescribing

Doses and intervals of many drugs are altered in renal failure and should always be checked. Renal pharmacists are the best sources of information on anything non-routine. Important examples of drugs that require special consideration are:

Antibiotics - see [antimicrobial section](#) for more detail

Aminoglycosides, Vancomycin - doses in dialysis patients are days apart, and should be given based on appropriate trough level monitoring.

Tetracyclines - only doxycycline can be used in renal failure.

Nitrofurantoin - should not be prescribed if $EGFR < 60$; it causes peripheral neuropathy and will be ineffective for treating UTI's, due to inadequate urine concentration.

Cimetidine - should be avoided in favour of ranitidine or other H₂ blockers. It blocks tubular secretion of creatinine.

NSAIDs - should generally be avoided in significant renal impairment, though in mild/moderate CKD they can be used after discussion and with monitoring if alternatives are much less effective. Avoidance is not essential for dialysis patients but risk of GI bleeding is probably already increased in ESRD.

Opiates - the effects of almost all except for fentanyl are very much prolonged in renal failure. There is great potential for active metabolites to accumulate. These can have significant adverse effects.

Aluminium or bismuth - containing compounds should be avoided in renal impairment. (Al hydroxide with caution - see [osteodystrophy](#))

ACE inhibitors/ARBs may cause hyperkalaemia in renal failure (check in 3 and 7 days if high risk), and a steep decline in function in renal artery stenosis (check creatinine in 1 week or in 4 and 10 days if high risk). Re-checks should be undertaken after substantial increases in dose, or if loop diuretics are added or much increased. Note that only a 20-30% rise in creatinine should be regarded as significant; a small rise is normal. UK CKD Guidelines recommend accepting a cautious 20% (15% reduction in eGFR) after introducing ACEi or ARB. See how to

start an ACE inhibitor.

Heparin - low molecular weight heparins are renally excreted and should be used with caution in patients with CKD stages 4-5 or AKI. There is increased risk of bleeding and monitoring of anti-Xa activity should be considered. Unfractionated heparin is advised by some for patients with $EGFR < 25 \text{ ml/min}$. Dose reduction of LMW Heparins in patients with renal impairment is required, if used.

Further info

- [Renal Drugs A-Z](#)
- [NHS Lothian shared care protocols](#)
- [Lothian joint formulary](#) (click on adult, child etc as appropriate; other useful links listed also)

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