

DRUG THERAPY IN RENAL DISEASE

Prescribing in renal impairment

1. Drug prescribing should be kept to a minimum.
2. The extent to which the dose of a drug is reduced depends on the pharmacokinetics of the drug. The total daily dose of a drug can be adjusted by increasing the interval between doses. If the maintenance dose is reduced, a loading dose for immediate effect is required.
3. Nephrotoxic drugs should be avoided in patients with renal disease.
4. The serum creatinine concentration can usually be used as a measure of renal function

$$\text{Creatinine clearance} = \frac{(140 - \text{Age}) \times \text{Weight in kilograms}}{72 \times \text{Serum Creatinine in mg/dl}}$$

For prescribing purpose renal impairment is divided into 3 grades:

Grade	GFR	Serum creatinine (approx)
Mild	20-50 ml/min	200-300 µmol/L
Moderate	10-20 ml/min	300-700 µmol/L
Severe	<10 ml/min	> 700 µmol/L

5. It is wise to assume at least mild impairment of renal function when prescribing for the elderly.

Drugs that can cause renal damage

ACE inhibitors	Cyclosporin	Methoxyflurane
Acetaminophen	Diatrizoate	Methyl CCNU
Acyclovir	Diuretics	Mithramycin
Allopurinol	Interleukin-2	Nimesulide
Aminoglycosides	Iohexol	Penicillamine
Ampicillin	Lithium	Phenytoin
Aspirin	Meglumine iotrexate	Rifampicin
Carb Anh inhibitors	Methionine	Tetracycline
Cisplatin	Methotrexate	Triamterine

Doses of drugs that required to be reduced in case of impaired renal function

Amoxicillin	Dacarbazine	Nalidixic acid
Ampicillin	Daunorubicin	Pentamidine isetionate
Atenolol	Dextromethorphan	Pethidine
Azathioprine	Diazepam	Phenytoin
Benzyl penicillin	Dicloxacillin	Piperacillin
Bleomycin	Diethylcarbamazine	Prazosin
Capreomycin	Digoxin	Procainamide
Cefotaxime	Eflornithine	Propranolol
Ceftadizime	Ethambutol	Propylthiouracil
Ceftriaxone	Flucytosine	Pyrazinamide
Cefuroxime	Frusemide	Pyridostigmine
Chloroquine	Gentamicin	Salicylates
Chlorpheniramine	Hydralazine	Streptomycin
Ciprofloxacin	Imipenem + Cilastin	Theophylline
Clavulanic acid	Lamivudine	Trimethoprim
Clofibrate	Magnesium hydroxide	Valproic acid
Cloxacillin	Magnesium sulphate	Vancomycin
Codeine	Mercaptopurine	Vecuronium
Colchicine	Methotrexate	Warfarin
Cyclophosphamide	Morphine	Zidovudine