GUIDELINES AND RECOMMENDATIONS FOR DOSING ANTINEOPLASTIC AGENTS IN RENAL FAILURE

Chemotherapeutic Agent	ADJUSTMENT FOR RENAL FAILURE % OF STANDARD DOSE ADMINISTERED			
	GFR (mL/min)			
	> 60 mL/min	30 – 60 mL/min	10 – 30 mL/min	< 10 mL/min
Azacitidine	If unexplained reductions in sodium bicarbonate levels to < 20 mEq/L occur, the dosage should be reduced by 50% in the next course. If unexplained elevations of BUN or creatinine occur, the next cycle should be delayed until the values return to normal or baseline, and the dose should be reduced by 50% in the next course.			
Bleomycin[1]	100%	50%	Omit	Omit
Capecitabine[2, 3]	> 51 mL/min 100%	30 – 50 mL/minute 75%	Omit	Omit
Carboplatin[1]	Determine dose by Calvert Formula			
Cisplatin[1]	100%	50%	Omit	Omit
Cyclophosphamide[1]	100%	100%	10%	50%
Cyclophosphamide[4]	100%	100%	≤ 30 mL/minute 70 – 70%	
Cytarabine[1,5]	100%	50%	Omit	Omit
Dacarbazine[1]	100%	75%	50%	Omit
Etoposide[1]	100%	100%	100%	50%
Fludarabine[1,6]	100%	75%	50%	Omit
Gemcitabine[7]	No significant impact of mild to moderate renal insufficiency on gemcitabine PK			
Hydroxyurea[1]	100%	75%	75%	50%
Ifosfamide[1,8]	100%	75%	50%	Omit
Melphalan (IV) [1]	100%	75%	75%	50%
Mercaptopurine[2]	Dosage should be modified depending on clinical response and degree of renal impairment, but no quantitative dosage recommendations are available. The following guidelines have been suggested: CrCl 50—80 mL/min: modify dosage interval to every 24—36 hours. CrCl 10—50 mL/min: modify dosage interval to every 48 hours. CrCl < 10 mL/min: no quantitative dosage recommendations are available.			
Methotrexate[1]	100%	50%	Omit	Omit
Mitomycin[1]	100%	75%	50%	Omit
Nitrosoureas[1]	100%	Omit	Omit	Omit
Oxaliplatin[9]	Generally does not need modification, with the exception of patients with a CrCl < 30 mL/minute. No specific modifications available.			
Streptozocin[2]	100%	75%	50%	
Pentostatin[10]	100%	41 – 60 mL/min 75%	21 – 40 mL/min 50%	NI
Pentostatin[1]	100%	50%	Omit	Omit
Procarbazine[2]	Reduced doses are recommended to avoid excessive toxicity in patients with a BUN > 40 mg/dL and/or serum creatinine > 2 mg/dL.			
Topotecan[1]	100%	75%	50%	Omit

NI = No information

With all of these agents, extreme caution should be used when administering other nephrotoxic drugs (e.g. aminoglycosides and amphotericin B).

References:

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