

Pharmacological Management of Hyperglycaemia in People Living with Type 2 Diabetes and Chronic Kidney Disease

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● No dose adjustment needed ● Dose adjustment or further action recommended ● Not recommended

	CKD stage (ml/min/m ²)				
	Stages G1 and G2 eGFR ≥60	Stage G3a eGFR 45–59	Stage G3b eGFR 30–44	Stage G4 eGFR 15–30	Stage G5 eGFR <15
Metformin	3 g total maximum daily dose (in 2–3 daily doses)	2 g total maximum daily dose (in 2–3 daily doses)	1 g total maximum daily dose (in 2–3 daily doses)	Not recommended	
Sulfonylureas	Increased risk of hypoglycaemia if eGFR <60. Consider reducing dose. Gliclazide and glipizide preferred as metabolised in the liver		Not recommended		
Repaglinide	No dose adjustment needed				
Acarbose	No dose adjustment needed			Avoid if CrCl <25 ml/min/1.73 m ²	
Pioglitazone	Avoid in those on dialysis				
Alogliptin	No dose adjustment needed		Reduce to 12.5 mg od if CrCl ≤50 ml/min	Reduce to 6.25 mg od if CrCl <30 ml/min or dialysis required	
Linagliptin	No dose adjustment needed				
Saxagliptin	No dose adjustment needed		Reduce to 2.5 mg od	Avoid in those on dialysis	
Sitagliptin	No dose adjustment needed		Reduce to 50 mg od	Reduce to 25 mg od	
Vildagliptin	No dose adjustment needed		Reduce to 50 mg od if CrCl <50 ml/min		
Canagliflozin	Initiate 100 mg and titrate to 300 mg if additional glycaemic improvement required	Initiate or continue 100 mg only	All SGLT2 inhibitors have negligible glucose-lowering effects once eGFR falls below 45. Consider adding an additional glucose-lowering agent if further glycaemic improvement is required		
Dapagliflozin	Recommended dose is 10 mg		Certain SGLT2 inhibitors have beneficial cardio-renal effects at all stages of renal impairment and should be continued See The Medscape UK Primary Care Hack, Extra-Glycaemic Indications of SGLT2 Inhibitors , for use of SGLT2 inhibitors in this context		
Empagliflozin	Initiate 10 mg and titrate to 25 mg if additional glycaemic improvement required	Initiate or continue 10 mg only	For further information, see: Diabetes Management in Chronic Kidney Disease: A Consensus Report by the American Diabetes Association and Kidney Disease: Improving Global Outcomes		
Ertugliflozin	Initiate 5 mg and titrate to 15 mg if additional glycaemic improvement required. Do not initiate if eGFR <60	Initiate or continue 10 mg only			Management of Hyperglycemia in Type 2 Diabetes, 2022. A Consensus Report by the American Diabetes Association and the European Association for the Study of Diabetes
Dulaglutide qw	No dose adjustment needed				
Exenatide bid	No dose adjustment needed		Dose escalation should proceed conservatively if CrCl 30–50 ml/min	Not recommended	
Exenatide qw	No dose adjustment needed				
Liraglutide od	No dose adjustment needed			Not recommended	
Lixisenatide od	No dose adjustment needed				
Semaglutide sc qw	Limited experience in patients with severe renal impairment eGFR <30				
Semaglutide oral od	Not recommended				
Tirzepatide qw	No dose adjustment is required for patients with renal impairment including ESRD. Experience with the use of tirzepatide in patients with severe renal impairment and ESRD is limited				
Degludec + liraglutide (Xultophy®)	No dose adjustment needed		Intensify glucose monitoring and dose adjust on an individual basis		Not recommended
Glargine + lixisenatide (Suliqua®)	No dose adjustment needed		Intensify glucose monitoring and dose adjust on an individual basis		Not recommended
All insulins	No dose adjustment needed		Intensify glucose monitoring and dose adjust on an individual basis due to increased risk of hypoglycaemia		

Table based on author's clinical experience and interpretation of relevant summaries of product characteristics.

bid: twice daily; CKD: chronic kidney disease; CrCl: creatinine clearance; eGFR: estimated glomerular filtration rate; ESRD=end-stage renal disease; od: once daily; qw: once weekly; sc: subcutaneous