

Dosing of Paxlovid in Renal Disease

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Please check www.covid19-druginteractions.org for updates.

Data are limited or absent; therefore, risk-benefit assessment for any individual patient rests with prescribers.

Guidance for the use of nirmatrelvir/ritonavir in patients with advanced chronic kidney disease and patients on dialysis

Produced from published reports and guidance produced by Ontario Health Renal Network (ontariohealth.ca).

Local guidance may be available for your region.

Background

- Paxlovid (nirmatrelvir/ritonavir) is a very effective therapy in the early management of high-risk patients, such as those with advanced chronic kidney disease or those on dialysis, however it is renally cleared and product labels do not currently recommend it for patients with eGFR <30 ml/min^{1,2}.
- Compared to healthy controls with no renal impairment, C_{max} and AUC of nirmatrelvir increased by 30% and 24% in patients with mild renal impairment, by 38% and 87% in patients with moderate renal impairment, and by 48% and 204% in patients with severe renal impairment¹.
- Nirmatrelvir trough concentrations in critically ill Chinese patients undergoing continuous renal replacement therapy receiving nirmatrelvir/ritonavir 300/100 mg twice daily (n=5), 300/100 mg once daily (n=1) or 150/100 mg twice daily (n=2) were up to 7-fold higher compared with patients with normal renal function and 2-fold higher compared with patients with end-stage renal disease undergoing haemodialysis³.
- On the basis of clinical, modelling and patient data⁴⁻⁶, an adjusted dose given at a lower frequency is proposed for use in people with eGFR <30 ml/min and in those on dialysis after appropriate evaluation and discussion of risks and benefits with the patient.

Current and Proposed Dosing Recommendations

Renal Function	Current Label Recommendations	Proposed Dosing Guidance
eGFR >60 ml/min	300 mg nirmatrelvir + 100 mg ritonavir both twice daily for 5 days	300 mg nirmatrelvir + 100 mg ritonavir both twice daily for 5 days
eGFR 30-60 ml/min	150 mg nirmatrelvir + 100 mg ritonavir both twice daily for 5 days	150 mg nirmatrelvir + 100 mg ritonavir both twice daily for 5 days
eGFR <30 ml/min	Do not use	300 mg nirmatrelvir + 100 mg ritonavir both on day 1, followed by 150 mg nirmatrelvir + 100 mg ritonavir both once daily for 4 days
Dialysis	Do not use	<p><i>Patients ≥ 40 kg:</i> 300 mg nirmatrelvir + 100 mg ritonavir both on day 1, followed by 150 mg nirmatrelvir + 100 mg ritonavir both once daily for 4 days, given after dialysis</p> <p><i>Patients <40 kg:</i> 150 mg nirmatrelvir + 100 mg ritonavir both on day 1, followed by 150 mg nirmatrelvir + 100 mg ritonavir both every 48 hours for 2 more doses, given after dialysis</p>

References

1. Paxlovid [Summary of Product Characteristics](#), Pfizer Ltd.
2. Paxlovid [US Prescribing Information](#), Pfizer Inc.
3. High concentrations of nirmatrelvir/ritonavir in critically ill patients receiving continuous renal replacement therapy. Dong R, Huang Y, Ling X, et al. *Int J Antimicrob Agents*. 2023, 63(1):106997.
4. Early experience with modified dose nirmatrelvir/ritonavir in dialysis patients with coronavirus disease 2019. Hiremath S, Blake PG, Yeung A, et al. *Clin J Am Soc Nephrol*, 2023, 18(4):485-490.
5. Safety profile and clinical and virological outcomes of nirmatrelvir-ritonavir treatment in patients with advanced chronic kidney disease and coronavirus disease 2019 (COVID-19). Chan GCK, Lui GCY, Wong CNS, et al. *Clin Infect Dis*. 2023, 77(10):1406-1412.
6. Nirmatrelvir and ritonavir combination in COVID-19 patients with advanced chronic kidney disease. Lafont E, Blez D, Bildan MA, et al. *Clin Infect Dis*. 2023, Epub ahead of print.