

Administration in Cases of Swallowing Difficulties

Charts updated 11 October 2021

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

No recommendation to use experimental therapy for COVID-19 is made.

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

Experimental COVID-19 Antiviral Therapies

Drug	Formulation	Comments
Atazanavir	Capsules	Manufacturer does not recommend opening of capsules. Use oral solution if unable to swallow tablets.
	Oral solution	<ul style="list-style-type: none"> It is preferable to mix atazanavir oral powder with food such as applesauce or yogurt. However, mixing with a beverage (milk, infant formula, or water) may be used. Administer the entire dosage within one hour of preparation (the mixture may be left at room temperature during this one hour period). <i>(Reyataz Prescribing Information, Bristol-Myers Squibb.)</i>
Azithromycin	Various	Product labels make no recommendation for or against opening capsules or crushing tablets. A suspension for oral administration and a solution for IV infusion are available.
Bamlanivimab/ Etesevimab	IV	IV formulation – recommendations for swallowing difficulties are not applicable.
Casirivimab/ Imdevimab	IV	IV formulation – recommendations for swallowing difficulties are not applicable.
Chloroquine	Tablets	It is preferable to avoid crushing tablets; however, chloroquine tablets may be crushed and mixed with jam, honey, pasteurised yoghurt, or similar foods. <i>(National Pharmacy Association, Chloroquine, July 2018.)</i>
	Syrup	Contains propylene glycol, but no recommendations are given in the product label as to compatibility with feeding tubes. <i>(Malarivon Summary of Product Characteristics, Wallace Manufacturing Chemists.)</i>
Favipiravir	Tablets	Tablets can be crushed and mixed with liquid. <i>(Sissoko D, et al. PLoS Med, 2016, 13(3):e1001967.)</i>
Hydroxychloroquine	Tablets	Manufacturer does not recommend crushing of tablets. <i>(Plaquenil Patient Information Leaflet, Zentiva.)</i> However, some sources suggest that tablets can be crushed and dispersed in water. <i>(Healthline, Hydroxychloroquine oral tablet, January 2018.)</i>
Interferon beta	Various	Various non-oral routes of administration are being studied - recommendations for swallowing difficulties are not applicable.
Ivermectin	Tablets	The product label makes no recommendation for or against crushing tablets. It has been reported that tablets may be crushed for administration via a PEG tube <i>(DermNet NZ)</i> .

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Experimental COVID-19 Antiviral Therapies (continued)

Drug	Formulation	Comments
Lopinavir/ritonavir	Tablets	<p>Manufacturer does not recommend crushing of tablets. Use oral solution if unable to swallow tablets.</p> <p>TDM measurements in COVID-19 patients showed that crushing of lopinavir/ritonavir tablets did not lower lopinavir concentrations; on the contrary, concentrations were elevated (<i>Mohsenian Naghani S et al. Eur J Hosp Pharm. 2021, Epub ahead of print</i>).</p> <p>There are no data regarding crushing of tablets and administration through a NG tube.</p> <p>For COVID-19 patients, no increase in lopinavir/ritonavir dosage is a priori needed when crushing the tablets and administering through a NG tube.</p>
	Oral solution	<ul style="list-style-type: none"> Administer syrup without dilution otherwise there is a risk of precipitation. A white residue or cloudy solution may be visible inside the tube but will not clog the tube. Rinsing the administration feeding tube with milk rather than water may (potentially) help prevent precipitation (<i>EACS Guidelines, v10.0, November 2019</i>). Contains propylene glycol (15.3%) and alcohol (42% v/v). As the oral solution contains ethanol and propylene glycol, it is not recommended for use with polyurethane feeding tubes due to potential incompatibility. Feeding tubes that are compatible with ethanol and propylene glycol, such as silicone and polyvinyl chloride (PVC) feeding tubes, can be used. As the oral solution contains alcohol, disulfiram-like reactions may occur with disulfiram or other drugs that produce this reaction (e.g. metronidazole). Coadministration is contraindicated with disulfiram or metronidazole in the SmPC due to the potential risk of toxicity from propylene glycol. <p>(<i>Kaletra Oral Solution Summary of Product Characteristics, AbbVie Ltd. Kaletra Prescribing Information, AbbVie Inc.</i>)</p>
Nicosamide	Various	<p>Oral, intramuscular, inhaled and intranasal formulations are being studied for COVID-19.</p> <p>Nicosamide tablets can be crushed or disintegrated in a little water; some clinical trials allow for the administration of nicosamide by feeding tubes.</p>
Nitazoxanide	Tablets	The US Prescribing Information makes no recommendation for or against crushing tablets.
	Oral solution	<p>Nitazoxanide powder should be reconstituted with water and may be stored for 7 days at room temperature.</p> <p>(<i>Alinia US Prescribing Information, Romark Pharmaceuticals.</i>)</p>
Remdesivir	IV	IV formulation – recommendations for swallowing difficulties are not applicable.
Ribavirin	Capsules	<p>The capsules should not be opened, crushed or broken. Note: ribavirin is a known teratogen.</p> <p>(<i>Rebetol Summary of Product Characteristics, Merck Sharp & Dohme Ltd. Rebetol Prescribing Information, Merck Sharp & Dohme.</i>)</p>
	Oral solution	<p>Contains propylene glycol, but no recommendations are given in the product label as to compatibility with feeding tubes.</p> <p>(<i>Rebetol Summary of Product Characteristics, Merck Sharp & Dohme Ltd.</i>)</p>

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Experimental COVID-19 Immune Therapies

Drug	Formulation	Comments
Anakinra	SC	SC administration – recommendations for swallowing difficulties are not applicable.
Baricitinib	Tablets	Product labels make no recommendation for or against crushing tablets.
Budesonide	Inhaled	Inhaled formulation – recommendations for swallowing difficulties are not applicable.
Canakinumab	SC	SC administration – recommendations for swallowing difficulties are not applicable.
Colchicine	Tablets	Manufacturers state that tablets should be swallowed whole. However, some resources suggest that tablets can be crushed and certain tablets may disperse within 2 minutes when placed in 10 mL of water to give a coarse dispersion that breaks up further when drawn into a syringe (<i>Handbook of Drug Administration via Enteral Feeding Tubes, 2015</i>)
Dexamethasone	Tablets	Some manufacturers recommend that tablets should be swallowed whole (e.g., <i>Dexamethasone Summary of Product Characteristics, Consilient Health Ltd</i>). Some tablets can be divided (e.g., <i>Dexamethasone Summary of Product Characteristics, Advanz Pharma</i>), though tablet pieces may not be stable and should be discarded if not taken immediately (e.g., <i>Neofordex Summary of Product Characteristics, Aspire Pharma Ltd</i>).
	Other	Soluble tablets, oral solutions, and solutions for injection or infusion are available for patients with swallowing difficulties. <ul style="list-style-type: none"> Some tablets may disperse in water; the dispersion settles quite quickly but flushes down an 8Fr NG tube without blocking (<i>Handbook of Drug Administration via Enteral Feeding Tubes, 2015</i>). Oral solutions contain propylene glycol and some manufacturers recommend administration with silicone, PVC or polyurethane NG or PEG tubes only (e.g., <i>Dexamethasone Summary of Product Characteristics, Rosemont Pharmaceuticals Ltd</i>). Dexamethasone has reported incompatibilities and it is not recommended to mix remdesivir and dexamethasone together in the same IV infusion bag if coadministration is required. Dexamethasone sodium phosphate is physically incompatible with daunorubicin, doxorubicin and vancomycin and should not be mixed with solutions containing these drugs. It is also incompatible with doxapram HCl, glycopyrrolate, midazolam, prochlorperazine and promethazine in syringe (<i>Murney P. Aust Prescr, 2008, 31:98-101</i>).
Hydrocortisone	Tablets	Formulations for injection or infusion are available for patients with swallowing difficulties.
Methylprednisolone	Tablets	Formulations for injection or infusion are available for patients with swallowing difficulties.
Ruxolitinib	Tablets	The US Prescribing Information states that for patients unable to ingest tablets, ruxolitinib can be administered through a nasogastric tube (8 French or greater) as follows: <ul style="list-style-type: none"> Suspend one tablet in ~40 mL of water with stirring for approximately 10 minutes. Within 6 hours after the tablet has dispersed, the suspension can be administered through a nasogastric tube using an appropriate syringe. The tube should be rinsed with ~75 mL of water. The effect of tube feeding preparations on ruxolitinib exposure during administration through a nasogastric tube has not been evaluated. (<i>Jakafi Prescribing Information, Incyte Corporation</i> .)
Sarilumab	SC	SC administration – recommendations for swallowing difficulties are not applicable.
Tocilizumab	IV or SC	IV or SC administration – recommendations for swallowing difficulties are not applicable.