Lopinavir + ritonavir

Essential medicine status ✓

EMLc | ATC codes: J05AR10

Indication	Human immunodeficiency virus disease without mention of tuberculosis or malaria, clinical stage unspecified ICD11 code: 1C62.Z
INN	Lopinavir + ritonavir
Medicine type	Chemical agent
List type	Core
Formulations	**Oral > Solid > tablet:** 100 mg + 25 mg tablet (heat-stable) ; 200 mg + 50 mg tablet (heat-stable) (EML) **Oral > Solid > dosage form:** 40 mg + 10 mg (EMLc)
EML status history	First added in 2002 (TRS 914) Changed in 2007 (TRS 950) Changed in 2009 (TRS 958) Changed in 2015 (TRS 994) Changed in 2017 (TRS 1006) Changed in 2019 (TRS 1021) Changed in 2021 (TRS 1035)
Sex	All
Age	Also recommended for children
Therapeutic alternatives	The recommendation is for this specific medicine
Patent information	Main patents have expired but secondary patents might remain active in some jurisdictions. For more information on specific patents and license status for developing countries visit www.MedsPal.org Read more about patents.
Wikipedia	Lopinavir + ritonavir
DrugBank	Lopinavir, Ritonavir

Expert Committee recommendation

The Expert Committee recommended the deletion of lopinavir + ritonavir oral liquid 400 mg + 100 mg/5 mL from the core list of the EML and EMLc. The Expert Committee recommended the deletion from the core list of the EML and/or EMLc of the antiretroviral formulations and strengths as requested in the application. The Committee considered the rationale behind the proposed deletions to be reasonable, and that removal of these formulations would ensure full alignment between the Model Lists and recommendations included in the most recent WHO antiretroviral treatment guidelines and The 2021 optimal formulary and limited-use list for antiretroviral drugs for children.

Background

Formulations and strengths of antiretroviral medicines proposed for deletion: Lamivudine: tablet 150 mg (EMLc) Abacavir: tablet (dispersible, scored) 60 mg (EMLc) Efavirenz: tablet (scored) 200 mg (EML and EMLc) Ritonavir: oral liquid 400 mg/5 mL (EML and EMLc); oral powder 100 mg in sachet (EMLc) Atazanavir: solid oral dose form 100 mg (EML and EMLc); 300 mg (EML) Lopinavir + ritonavir: oral liquid 400 mg + 100 mg/5 mL (EML and EMLc) Raltegravir: chewable tablet 100 mg (EML and EMLc); tablet 400 mg (EMLc) Lamivudine + nevirapine + zidovudine: tablet 30 mg + 50 mg + 60 mg (EMLc); 150 mg + 200 mg + 300 mg (EML)

Benefits

Recommendations were made by the WHO HIV Department to delete the above-mentioned antiretroviral formulations from the EML and/or EMLc in order to achieve alignment between WHO's 2019 Update of recommendations on first- and second-line antiretroviral regimens (1) and The 2021 optimal formulary and limited-use list for antiretroviral drugs for children: policy brief (2). Lamivudine tablet 150 mg and abacavir dispersible, scored tablet 60 mg are proposed for deletion from the EMLc. These formulations have been excluded from the 2021 optimal formulary since a regimen of three nucleoside/nucleotide reverse-transcriptase inhibitors for tuberculosis co-treatment is no longer needed given the introduction of dolutegravir. Efavirenz scored tablet 200 mg is proposed for deletion from both the EML and EMLc. This formulation has been excluded from the 2021 optimal formulary as efavirenz-containing regimens are not a preferred or alternative regimen for children in the WHO guidelines (1). Active phase out is being supported by major procurement agencies as regimens containing efavirenz are now considered suboptimal in light of the high level of resistance to non-nucleoside reverse-transcriptase inhibitors documented in many countries. The 200 mg formulation of efavirenz is not an appropriate strength formulation for treatment of adults. Efavirenz 600 mg tablets remain on the EML for adult use. Ritonavir oral liquid 400 mg/5 mL is proposed for deletion from both the EML and EMLc. This formulation was proposed for deletion in 2019 but was retained until the availability of alternative ritonavir formulations was established. It was recommended for deletion without further discussion by the Expert Committee in 2021 (3). Furthermore, this formulation is no longer necessary for lopinavir + ritonavir super-boosting, as dolutegravir is a more suitable option for tuberculosis co-treatment. Ritonavir heat-stable tablets 25 mg and 100 mg remain on both the EML and EMLc. Ritonavir oral powder 100 mg in sachet is proposed for deletion from the EMLc. It is no longer included in the 2021 optimal formulary, and as with ritonavir oral liquid, this formulation is no longer necessary for lopinavir + ritonavir super-boosting since dolutegravir became available. Atazanavir solid oral dose form 100 mg and 300 mg are proposed for deletion from the EML and EMLc. Single-agent atazanavir formulations require separate administration of ritonavir; therefore alternatives are preferred (e.g. dolutegravir 10 mg or 50 mg, and solid fixed-dose formulations of lopinavir/ritonavir). Atazanavir 100 mg was excluded from the 2021 optimal formulary for this reason. Lopinavir + ritonavir oral liquid 400 mg + 100 mg/5 mL is proposed for deletion from the EML and EMLc. This formulation has been replaced in practice by solid oral dose forms (pellets and granules), which remain on the EML and EMLc. This formulation of lopinavir + ritonavir was also excluded from the 2021 optimal formulary. Raltegravir chewable tablet 100 mg is proposed for deletion from the EML and EMLc, and raltegravir tablet 400 mg is proposed for deletion from the EMLc. Raltegravir 100 mg chewable tablet was replaced on the 2018 optimal formulary. It was proposed for deletion from the EML and EMLc in 2019, but was retained until the availability of the 25 mg formulation was established. It was recommended for deletion without further discussion by the Expert Committee in 2021 (3). Raltegravir chewable tablet 25 mg and granule 100 mg remain on the EML and EMLc. Raltegravir 400 mg tablets remains on the EML. Lamivudine + nevirapine + zidovudine fixed-dose combinations are proposed for deletion from the EML (150 mg + 200 mg + 300 mg) and EMLc (30 mg + 50 mg + 60 mg). Nevirapine-containing regimens are not recommended in WHO guidelines as a preferred or alternative regimen (1). Active phase out is being supported by major procurement agencies as these regimens are now considered suboptimal in light of the high level of resistance to non-nucleoside reverse-transcriptase inhibitors documented in many countries.

WHO guidelines

The proposed deletions are in alignment with recommendations in current WHO guidelines and The 2021 optimal formulary and limited-use list for antiretroviral drugs for children: policy brief.

1. Update of recommendations on first- and second-line antiretroviral regimens. Geneva, Switzerland: World Health Organization; 2019 (WHO/CDS/HIV/19.15) (https://apps.who.int/iris/handle/10665/325892, accessed 2 June 2021).
2. The 2021 optimal formulary and limited-use list for antiretroviral drugs for children: policy brief. Geneva: World Health Organization; 2021 (https://apps.who.int/iris/handle/10665/330668, accessed 2 June 2021).
3. The selection and use of essential medicines. Report of the WHO Expert Committee, 2019 (including the 21st WHO Model List of Essential Medicines and the 7th WHO Model List of Essential Medicines for Children). Geneva: World Health Organization; 2019 (WHO Technical Report Series, No. 1021; https://apps.who.int/iris/handle/10665/330668, accessed 10 April 2021).