Molnupiravir, a covid-19 antiviral drug bought by the UK government in the amount of 2.23 million doses, is no better than placebo at lowering the risks of death and hospital admission, a pivotal UK trial has found.

Preliminary results released from the Panoramic trial of 25,783 people who were randomly assigned to open label treatment with molnupiravir plus usual care or to usual care alone found no significant difference between the two groups for the primary endpoint of death or hospital admission. The study has been published as a preprint and has not yet been peer reviewed.

The UK was the first country to authorise Merck Sharp and Dohme’s molnupiravir (Lagevrio) for the treatment of mild to moderate covid-19 in adults with at least one risk factor for severe illness, in November 2021. The European Medicines Agency has still not approved the drug.

When Sajid Javid, then health secretary, announced the deal to purchase molnupiravir he called it a “gamechanger for the most vulnerable and the immunosuppressed.” The government has been criticised for overhyping the antiviral: the editors of the Drug and Therapeutics Bulletin said that official government press releases had been “over-promotional and sensationalised.”

The price paid for the drug is confidential, but Andrew Hill, senior visiting research fellow at the University of Liverpool, estimates this to be around £1bn (€1.14bn; $1.10bn). “If molnupiravir has no effect on hospitalisation, is it not clear if it is worth the estimated £600 per treatment course,” he told The BMJ.

Recovery times

The Panoramic study, sponsored by the University of Oxford, found that 0.8% of patients in the molnupiravir group (103 of 12,516) and 0.8% in the usual care group (96 of 12,484) were admitted to hospital or died in the first 28 days (adjusted odds ratio 1.061 (95% bayesian credible interval 0.80 to 1.40)).

All participants in the trial were confirmed to have coronavirus infection, and the patients were either aged over 50 or were 18 or older with comorbidities. Almost all of the participants (99%) had had at least one coronavirus vaccination.

On the secondary endpoint, the observed median time to first self-reported recovery was six days shorter in the molnupiravir group (nine days v 15 days). In other analyses of the Panoramic trial, clinical recovery was three to four days faster with molnupiravir.

However, Hill said that the Panoramic study was open label and that recovery could be quite subjective. “There was no benefit for molnupiravir in terms of clinical recovery in the placebo controlled Move-Out trial, when the patient did not know if they were taking active drug or placebo,” he said. “Also, other much cheaper drugs have been shown to improve recovery times, like budesonide in the Oxford Principle trial, which costs less than £15 per course.”

After five days of treatment the patients in the Panoramic trial showed significantly lower viral load levels than those in the control arm (P<0.001). However, after 14 days of treatment the viral load was significantly higher in the molnupiravir arm (P=0.015).

Early approval

The UK approved molnupiravir after early results of Merck’s Move-Out trial in October 2021. However, this was based on an interim analysis of 762 patients, showing a 50% reduction in hospital admission. The risk of hospital admission or death was 7.3% with molnupiravir (28 of 385 participants), compared with 14.1% in the placebo group (53 of 377). However, when the full results of 14,333 unvaccinated participants were published in the New England Journal of Medicine the difference was much smaller (6.8% v 9.7%).

When the results of the Panoramic and Move-Out trials are combined, molnupiravir shows no significant benefit in hospital admission or death (P=0.53).

Another study just published in the Lancet examines the real world effectiveness of antivirals including molnupiravir during the omicron wave in Hong Kong. It found that early initiation of oral antivirals was associated with lower risks of death and in-hospital disease progression. However, Hill said that the methodology was highly prone to bias, as the study was not randomised.

Only 13,944 of the UK’s 2.23 million doses of molnupiravir have been administered outside clinical trials in the UK, according to NHS data up to the week ending 25 September 2022. “The NHS has used less than 1% of the antiviral treatments it ordered, and it is not clear how the other 99% will be used before they pass their expiry dates,” said Hill.

A Department of Health and Social Care spokesperson told The BMJ, “The UK is a world leader in delivery of clinical research, as shown by the speed of this record breaking trial, and our priority continues to be finding effective treatments for those most vulnerable to covid-19.

“Molnupiravir will continue to be available to high risk patients, alongside other medicines, free testing, and vaccination, as it speeds up recovery time and...
reduces the amount of virus in patients. We look forward to seeing the final, peer reviewed data when it is published.”

The Panoramic study is still open and is now studying a second oral antiviral, Paxlovid, which entered the study on 12 April 2022. The National Institute for Health and Care Excellence is also currently assessing molnupiravir.


8 Wong C, Au I, Lau E, etal. Real-world effectiveness of molnupiravir and rimantadine plus nontovir during the omicron wave in Hong Kong: an observational study. Lancet 2022;600:-22. doi: 10.1016/S0140-6736(22)01586-0. pmid: 36216007