CoLab Network

Summary Report

Outpatient Nirmatrelvir–Ritonavir and Remdesivir Utilization in Canada

Report Authors

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Knowledge Translation Support

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This Drug Utilization Study was conducted by the Canadian Network for Observational Drug Effect Studies (CNODES) through the Post-Market Drug Evaluation CoLab Network.

Executive Summary

There are several drug treatments approved for the management of COVID-19 in Canada. The objective of this Drug Utilization Study was to describe the use of nirmatrelvir-ritonavir (NMV-r) and remdesivir in outpatients across Canada, and to describe the characteristics of patients receiving these therapies. NMV-r was studied in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, and Quebec. Remdesivir was studied in Ontario, Saskatchewan, and Winnipeg, Manitoba. During the study period, 212,593 adults filled 218,862 NMV-r prescriptions, with per capita monthly use growing rapidly in Ontario and Manitoba during the first year of study and declining thereafter. This contrasted use in other provinces, which was lower and more stable throughout the study period. Similarly, per capita monthly remdesivir use grew rapidly to October 2022 and declined gradually thereafter. In all provinces, more than 90% of patients received just 1 course of treatment with NMV-r, with less than 10% receiving the lower dosage pack for patients with renal impairment, although there were important cross-provincial differences in patient characteristics. These findings may not be generalizable to other jurisdictions.

Background

Several drug treatments for the management of COVID-19 are approved for use in Canada. Currently, the federal government, through the Public Health Agency of Canada, is responsible for overseeing the procurement and allocation of these drugs to ensure their availability for federal, provincial, and territorial health care systems. The following drugs, which are in high demand, are currently funded by the Public Health Agency of Canada: NMV-r (Paxlovid), remdesivir (Veklury), and tocilizumab (Actemra).

Policy Issue

Gathering postmarket drug information on the use of NMV-r and remdesivir is needed to help inform future decisions about its procurement, allocation, and equitable distribution within health care systems in Canada.

Policy Questions

1. What is the outpatient utilization of NMV-r and remdesivir in Canada?
2. What are the characteristics of patients receiving these therapies?

Objective

The objective of this Drug Utilization Study was to describe the use of NMV-r and remdesivir in outpatients across Canadian provinces where data were readily available and to describe the characteristics of patients receiving these therapies.

Findings

Nirmatrelvir-Ritonavir

Nirmatrelvir-Ritonavir Use

Researchers conducted a retrospective cohort study of NMV-r utilization using administrative health care data from 6 provinces: British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, and Quebec. The data spanned January 2022 to March 2023 in Alberta and Manitoba, January 2022 to May 2023 in British Columbia, April 2022 to March 2023 in Ontario, March 2022 to June 2023 in Quebec, and January 2022 to December 2022 in Saskatchewan.

During the study period, 212,593 adults filled 218,862 NMV-r prescriptions. More than 90% of patients received just 1 course of treatment, and fewer than 10% received the lower-dose renal pack for patients with renal impairment.

Use Patterns

The monthly use of NMV-r per 100,000 population was highest in Manitoba and Ontario, with rapid growth in the first year and decline thereafter, while use was lower and more stable in the other provinces. However, this trend changed when expressed per 100 COVID-19 cases. The use of NMV-r in both Manitoba and British Columbia exceeded that in Ontario and grew more rapidly over the study period, with use being greatest and rising most rapidly in Manitoba. Alberta, Saskatchewan, and Quebec had lower and more stable usage rates.

Patient Characteristics

Approximately 70% of NMV-r recipients were aged 65 years or older, more than 57% were female, and more than 90% had received at least 1 dose of a COVID-19 vaccine. However, there were important cross-provincial differences in patient characteristics, including the prevalence of comorbidities such as cardiovascular disease and immunocompromising conditions.

Remdesivir

Remdesivir Use

Researchers gathered aggregate data on remdesivir prescriptions from 3 locations: Ontario, Saskatchewan, and Winnipeg, Manitoba. The data spanned from April 2022 to April 2023 in Saskatchewan, April 2022 to May 2023 in Manitoba, and July 2022 to May 2023 in Ontario.

A total of 2,610 prescriptions were recorded in Ontario, 324 in Saskatchewan, and 407 in Winnipeg, Manitoba.

Use Patterns

The monthly use of remdesivir per 100,000 population was similar in all provinces, with use growing rapidly, peaking in early fall 2022, and declining thereafter. However, this trend changed when expressed per 10,000 COVID-19 cases, with remdesivir use being greater in Saskatchewan than Ontario.

Patient Characteristics

As only aggregate data were readily available, it was not possible to characterize patients receiving remdesivir.

Limitations

While this was the first population-based analysis of NMV-r and remdesivir use in Canada, the study had important limitations, including an inability to confirm that patients were severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) positive, heavy underestimation of the COVID-19 case counts used to standardize use rates, and interprovincial variation in the data used to characterize patients. The study's findings may not be generalizable to other jurisdictions.

Implications for Policy-Making

The study showed considerable interprovincial variation in NMV-r use and patient characteristics. Among other factors, these differences may be at least partially because of interprovincial variation in COVID-19 vaccination rates, variation in the clinical criteria for NMV-r therapy, and variation in pharmacist prescribing authority across the study provinces.

Considerations

While Post-Market Drug Evaluation (PMDE) projects are not typically commissioned to inform reimbursement recommendations, given the unique circumstances of the COVID-19 pandemic and procurement of COVID-19 therapies, this work was leveraged by the Canadian Drug Expert Committee (CDEC) to inform the reimbursement review of NMV-r and its recommendations.

Clinical questions regarding NMV-r or remdesivir therapy should be directed to a health care professional.

For more information on CoLab and its work, visit the **CoLab website**.

For the full scientific report, visit **Outpatient Nirmatrelvir–Ritonavir and Remdesivir Utilization in Canada**.

Canada's Drug and Health Technology Agency

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This Drug Utilization Study was conducted by the Canadian Network for Observational Drug Effect Studies (CNODES) through the Post-Market Drug Evaluation CoLab Network. This work was supported by CADTH and its Post-Market Drug Evaluation Program, through funding provided by Health Canada.

About CADTH: CADTH is a not-for-profit organization responsible for providing Canada's health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs and medical devices in our health care system.

About CoLab: CoLab is a pan-Canadian network of experts in applied research, scientific methods, and data analysis. CoLab members work with CADTH's Post-Market Drug Evaluation Program to produce credible and timely evidence on post-market drug safety and effectiveness.