■ Full Report

Scan or Click

Project Line:
Health Technology Review

Published:
October 2022

Project Number:
HC0036-000

■ Summary

Injectable Azacitidine for the Treatment of Acute Myeloid Leukemia

Key Messages

Injectable azacitidine as maintenance therapy for acute myeloid leukemia (AML) may prolong relapse-free survival, according to the 1 randomized controlled trial found by CADTH.

Oral azacitidine has been shown to prolong overall survival when compared with placebo, but it is not known if injectable azacitidine would result in similar outcomes. Injectable and oral azacitidine are pharmacokinetically different, with different approved doses and treatment durations.

CADTH did not find any direct head-to-head comparisons of the oral and subcutaneous formulations of azacitidine. So, CADTH cannot make any conclusions on how the clinical effectiveness of one formulation compares with the other as maintenance therapy for AML.

Injectable azacitidine requires trained health care providers to properly handle, administer, and dispose of the medication, which adds to the cost of providing the treatment. However, oral azacitidine costs more than injectable azacitidine.

Context

Acute myeloid leukemia (AML) is an aggressive cancer of the blood and bone marrow that is the most common acute leukemia among adults. In people with AML, myeloid cells that would normally develop into red blood cells, white blood cells, and platelets, instead develop abnormally. This causes weakness, infection, and bleeding, among other symptoms. The risk of AML increases with age, and approximately one-third of AML cases are diagnosed in people 75 years or older.

After people with AML have achieved complete remission, they receive additional therapy to delay relapse. This may involve more intensive chemotherapy and/or a hematopoietic stem cell transplant. But, for those who cannot tolerate aggressive treatment (i.e., people older than 65 years or whose genetic makeup could impact their response to treatment), lower intensity therapies may be more appropriate. One such treatment is azacitidine.

■ Contact

cadth.ca

@cadth_acmts

requests@cadth.ca

Technology

Azacitidine is a hypomethylating agent that is typically used to treat active AML by inhibiting the growth of leukemia cells. For people who cannot tolerate aggressive treatment, azacitidine has been shown to have a therapeutic benefit as maintenance therapy. It is available in an injectable and, more recently, an oral formulation.

Oral azacitidine (Onureg), which is approved for use as maintenance therapy in adults with AML who are in remission and are not eligible for stem cell transplant, is taken as a 300 mg daily dose for 14 days per 28-day cycle. Injectable azacitidine, for which maintenance therapy is considered an off-label use, has been used as maintenance therapy in research studies as a 50 mg/m^2 daily dose for 5 days per 28-day cycle.

Issue

Injectable azacitidine is already available as a generic drug in most Canadian jurisdictions. If injectable azacitidine is found to be an effective maintenance therapy for AML, it could be a less costly alternative to the currently approved oral formulation. Therefore, a review of the literature on the clinical effectiveness of injectable azacitidine as maintenance therapy for AML, and on the pharmacokinetic or pharmacodynamic profile of injectable compared with oral azacitidine, will help inform reimbursement decisions.

Methods

A limited literature search was conducted of key resources. Titles and abstracts were reviewed, and potentially relevant articles were retrieved and assessed for inclusion. The final selection of full-text articles was based on predetermined selection criteria (i.e., population, intervention, comparator, outcomes, and study designs).

Results

The literature search identified 300 citations, with 1 additional article identified from the grey literature. After screening the abstracts, 11 met the criteria for inclusion in this review. Eight of the studies examined the clinical effectiveness of azacitidine in AML or related hematological malignancies (3 randomized controlled trials and 5 non-randomized studies), and 3 non-randomized studies examined the pharmacokinetics and pharmacodynamics of azacitidine.

■ Disclaimer

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.

CADTH receives funding from Canada's federal, provincial, and territorial governments, with the exception of Quebec.

This material is made available for informational purposes only and no representations or warranties are made with respect to its fitness for any particular purpose; this document should not be used as a substitute for professional medical advice or for the application of professional judgment in any decision-making process. Users may use this document at their own risk. The Canadian Agency for Drugs and Technologies in Health (CADTH) does not guarantee the accuracy, completeness, or currency of the contents of this document. CADTH is not responsible for any errors or omissions, or injury, loss, or damage arising from or relating to the use of this document and is not responsible for any third-party materials contained or referred to herein. Subject to the aforementioned limitations, the views expressed herein do not necessarily reflect the views of Health Canada, Canada's provincial or territorial governments, other CADTH funders, or any third-party supplier of information. This document is subject to copyright and other intellectual property rights and may only be used for non-commercial, personal use or private research and study.