sotorasib (Lumakras™)

EOCCO POLICY

Policy Type: PA/SP Pharmacy Coverage Policy: EOCCO244

Description

Sotorasib (Lumakras) is an orally administered selective inhibitor of Kirsten Rat Sarcoma viral oncogene homologue (KRAS) and targets tumors harboring KRAS G12C mutation.

Length of Authorization

- N/A

Quantity Limits

Product Name	Dosage Form	Indication	Quantity Limit
sotorasib (Lumakras)	120 mg tablets	Non-Small Cell Lung Cancer (NSCLC), advanced or metastatic with a KRAS G12C mutation	240 tablets/30 days
	320 mg tablets		60 tablets/ 30 days

Initial Evaluation

I. Sotorasib (Lumakras) is considered investigational when used for all conditions, including but not limited to Non-Small Cell Lung cancer (NSCLC).

Renewal Evaluation

I. N/A

Supporting Evidence

I. Sotorasib (Lumakras) is the first therapy FDA-approved for advanced or metastatic NSCLC that harbors a KRAS G12C mutation. It is also the first orally administered drug in this setting.

II. KRAS mutations account for up to 25% of mutations in NSCLC and are often associated with resistance to targeted therapies and generally poor patient outcomes in patients with cancer. KRAS G12C, a subset of KRAS mutations, accounts for about 13% of mutations in NSCLC.

III. Most patients with NSCLC including *KRAS*-mutated tumors are treated with systemic chemotherapy, which includes carboplatin, pemetrexed, cisplatin, paclitaxel. Additionally, targeted immunotherapy such as inhibitors of programmed death-1 (PD-1) or programmed death-ligand 1 (PD-L1) (e.g., pembrolizumab (Keytruda), atezolizumab (Tecentriq), nivolumab (Opdivo)) are also recommended. Vascular Endothelial Growth Factor (VEGF) inhibitor ramucirumab (Cyramza) in combination with docetaxel (Taxotere) has shown success as a subsequent-line therapy in refractory disease.

IV. Sotorasib (Lumakras) received FDA-approval as a subsequent-line therapy in the advanced or metastatic NSCLC, after progression on or after at least one prior systemic chemotherapy. The National Comprehensive Cancer Network (NCCN) treatment guideline for NSCLC has given sotorasib (Lumakras) a Category 2A recommendation as a subsequent-line treatment for NSCLC harboring KRAS G12C mutation, after progression on or after conventional chemotherapy and / or immunotherapy.

V. Sotorasib (Lumakras) was evaluated in CodeBreak100, an ongoing Phase 1 / 2, open-label, single-arm trial. Patients (N=126) with KRAS G12C mutated NSCLC, who had disease progression after chemotherapy and/ or immunotherapy were included. All patients received sotorasib (Lumakras) 960 mg orally once a day for a median 15.3 months. Although this is an ongoing clinical trial with the goal to assess efficacy of sotorasib (Lumakras) for multiple oncological settings (NSCLC as well as other solid tumors harboring KRAS mutations), the FDA-approval for sotorasib (Lumakras) was based on outcomes from NSCLC cohort.

VI. The primary efficacy outcome for CodeBreak100 trial was Overall Response Rate (ORR). Key secondary outcomes were Progression-free Survival (PFS), duration of response (DoR), and Overall Survival (OS). Sotorasib (Lumakras) showed an ORR of 37.1% (95% CI; 28.6, 46.2), which included 3.2% complete responses (CR) and 33.9% partial responses (PR). Additionally, participants in this cohort showed DoR of 11.1 months (95% CI; 6.9, NE), PFS 6.8 months (95% CI; 5.1, 8.2), and OS 12.5 months (95% CI; 10.0, NE).

VII. Based on the data from CodeBreak100 trial, the quality of the evidence to support efficacy of sotorasib (Lumakras) is considered low at this time. Given the lack of comparator and single-arm open-label trial design, as well as lack of clinically meaningful outcomes in morbidity, mortality, and quality of life – medication efficacy remains uncertain.

VIII. The safety of sotorasib (Lumakras) was based on trial participants (n=126) exposed to therapy. The most common adverse events include diarrhea, nausea, fatigue, and aspartate aminotransferase increase. Serious adverse events (grade 3 or higher) occurred in 42.1% patients and included dyspnea, pneumonitis, and elevation of liver enzymes. At this time, patient population and duration of exposure to sotorasib (Lumakras) are limited to clinical trial participants. Thus, real-world safety profile and patient experience with this drug remain undefined. Based on single-arm, open-label clinical trial in small sample population, the overall safety profile of sotorasib (Lumakras) is largely unknown; thus, it is unknown at this time if benefits of this medication outweigh the risks.

IX. Currently, there are multiple clinical trials (Phase 1b / 2) ongoing for sotorasib (Lumakras) in the settings of NSCLC, colorectal cancer, and other solid tumors harboring KRAS G12C mutation. Additionally, sotorasib (Lumakras) is being studied as a combination regimen with other targeted therapies (e.g., MEK inhibitor, EGFR inhibitor, SHP2 inhibitor) for the treatment of NSCLC. These clinical trials are in early phases and data are not available for review.

X. Single-arm, open-label clinical trials may provide indicators of primary efficacy. However, data from these trials are insufficient to determine causal relationship between the drug use with patient outcomes and may not be clinically meaningful to make healthcare decisions. Additionally, the primary endpoint, ORR, despite being considered an optimal marker for a

single-arm study design, is not a strong surrogate marker. Overall Response Rate (ORR) is not a direct measure of benefit and cannot be used as a comprehensive measure of drug activity.

XI. Targeted therapies for treatment of NSCLC have garnered interest in recent years and may be considered part of a paradigm shift in the management of NSCLC based on histology and actionable driver mutations. However, while initially effective, many targeted therapies have been associated with increased drug resistance after their initial use. Acquired resistance to current molecularly targeted therapies in lung cancer presents a major clinical challenge. Additionally, targeted therapy approach is also susceptible to failure due to escape mutations.

XII. Ongoing research focuses on identifying potential novel biomarkers and mechanisms involved in resistance to these therapies. In this regard, conventional chemotherapy agents (e.g., docetaxel, pemetrexed) and immune checkpoint inhibitors (e.g., nivolumab, pembrolizumab) remain practical and established therapeutic options for members, after progression on or after first-line therapies (e.g., platinum-based chemotherapy). Additionally, combination regimens containing angiogenesis inhibitors with conventional chemotherapy agents (e.g., ramucirumab and docetaxel) has been successful treatment options based on a Phase 3 clinical trial reporting OS of 10.5 months versus docetaxel monotherapy 9.1 months (HR 0.86; 95% CI 0.75, 0.98; p 0.023). Efficacy and safety of sotorasib (Lumakras) in comparison with, or in combination with, currently established regimens, has not been studied and remains unknown.

XIII. Due to lack of conclusive clinical data to direct a path to curative therapies, NCCN guidelines for NSCLC notes that the best management for any patient with cancer is in a clinical trial setting, and participation in trial is especially encouraged. Patients participating in clinical trials receive regular care, often at leading health care facilities with experts in the field while participating in important medical research and further advancements in treatment, with close safety monitoring and follow-up. Participation in a clinical trial remains the most favorable treatment option for patients with advanced NSCLC. Despite the accelerated FDA-approval, and category 2A recommendation from NCCN, continued approval of sotorasib (Lumakras) as a second-line treatment of NSCLC, remains contingent upon verification of clinical benefit in confirmatory trials. As of August 2021, a Phase 3 randomized clinical trial (CodeBreak200) to assess efficacy and safety of sotorasib (Lumakras) in comparison with docetaxel, as a subsequent-line treatment for NSCLC, is underway. Additionally, expanded access program via manufacturer, as part of the ongoing clinical studies of sotorasib (Lumakras), remains a practical option and an alternative path to treatment for qualifying patients.

Investigational or Not Medically Necessary Uses

I. Sotorasib (Lumakras) has not been sufficiently studied for safety and efficacy for any condition to date.

References

1. Lumakras [Prescribing Information]. Amgen Pharmaceuticals Inc., Thousand Oaks, CA. June 2021.
2. Skoulidis F, Li BT, Dy GK et al. Sotorasib for Lung Cancers with *KRAS* p.G12C Mutation. N Engl J Med. 2021;384(25):2371-2381.

3. Black RC, Khurshid H. NSCLC: an update of driver mutations, their role in pathogenesis and clinical significance. R I Med J. (2013). 2015; 98: 25-8.
4. Aggarwal S, Whipple S, Hsu H, et al. 1339P: Clinicopathological characteristics and treatment patterns observed in real-world care in patients with advanced non-small cell lung cancer (NSCLC) and KRAS G12C mutations in the Flatiron Health (FH)-Foundation Medicine (FMI) Clinico-Genomic Database (CGDB). *Ann Oncol*. 2020;31: S860.
5. Hayashi H, Okamoto I, Taguri M, Morita S, & Nakagawa K. Post-progression survival in patients with advanced non-small-cell lung cancer who receive second-line or third-line chemotherapy. *Clin Lung Cancer*. 2013; 14:261-266.
6. National comprehensive Cancer Network. NCCN Guidelines: Non-small Cell Lung Cancer V5.2021. Available at: http://www.nccn.org/professionals/physician_gls/pdf/nscl.pdf. Updated June 15, 2021.

Policy Implementation/Update:

Action and Summary of Changes	Date
Policy created	11/2021