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Short communication

Interim analysis of effectiveness of JN.1-adapted conventional and self-amplifying mRNA COVID-19 vaccines against symptomatic SARS-CoV-2 infection in adults aged ≥60 years, Japan, October 2024–April 2025

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ABSTRACT

In Japan, JN.1-adapted conventional mRNA and self-amplifying mRNA (sa-mRNA) COVID-19 vaccines were introduced during the 2024–2025 season. We estimated the effectiveness of these vaccines against symptomatic SARS-CoV-2 infection among adults aged ≥60 years using a test-negative design (October 1, 2024–April 30, 2025). Eligible episodes were ≥1 COVID-19-like symptom and SARS-CoV-2 testing. Vaccine effectiveness (VE) was estimated using mixed-effects logistic regression. We included 954 episodes; 273 (28.6%) were SARS-CoV-2-positive. VE of combined JN.1-adapted conventional and self-amplifying mRNA vaccines was 46.7% (95% CI: 5.5–69.9) at ≥7 days, 51.6% (95% CI: 5.0–75.4) at 7–90 days, and 35.9% (95% CI: −50.0–72.6) at >90 days after vaccination. VE of the JN.1-adapted sa-mRNA vaccine alone was 74.5% (95% CI: 31.3–90.6) at ≥7 days. JN.1-adapted mRNA vaccination, including the sa-mRNA vaccine, was estimated to provide protection against symptomatic SARS-CoV-2 infection among older adults in Japan.

1. Introduction

Continuous evaluation of coronavirus disease 2019 (COVID-19) vaccines is essential for the further development of evidence-based health policies, as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) continues to evolve [1], and vaccine-induced immunity wanes over time [2,3]. Despite the availability of vaccines, COVID-19 remains a marked burden, particularly among older adults, who account for large proportions of hospitalizations and deaths [4,5].

Recently, a new mRNA vaccine platform, self-amplifying mRNA (sa-mRNA), was developed [6,7], and it is now available in Japan [8] and has been approved in the European Union [9] and United Kingdom [10]. During the 2024–2025 season in Japan, JN.1-adapted mRNA COVID-19 vaccines (JN.1 mRNA vaccine), including both conventional and self-amplifying platforms, were administered to older adults as part of the national immunization program (NIP) [8]. However, evidence

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