Blood Pressure in Patients With Migraine Treated With Monoclonal Anti-CGRP (Receptor) Antibodies
A Prospective Follow-up Study

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Cite as: Neurology® 2022;99:e1897-e1904. doi:10.1212/WNL.0000000000201008

Study Question
Does treatment with the preventive drugs erenumab and fremanezumab change systolic and diastolic blood pressure (BP) in people with migraine during 1 year of follow-up?

What Is Known and What This Paper Adds
Besides its role in migraine, CGRP is involved in BP regulation. No increased risk of hypertension has been reported in any of the randomized placebo-controlled clinical trials. However, concerns have been raised after a retrospective analysis of postmarketing case reports of elevated BP associated with erenumab. As migraine itself is associated with an increased cardiovascular risk, it is important that anti-CGRP treatment does not increase this risk even further. This study provides Class III evidence that anti-CGRP (receptor) antibodies increase BP when used to treat patients with migraine.

Methods
In this prospective follow-up study, all people with migraine who were treated with erenumab (n = 109) and fremanezumab (n = 87) at the Leiden Headache Center between January 2019 and January 2021 were included. BP measurements were collected from baseline (T0) until 12 months of follow-up, at 3-month intervals (T1–T4). Mixed linear models were fitted with time as a fixed effect and the patient as a random effect. For the primary outcome, these analyses were performed for the total study population. As a secondary analysis, the mixed models were repeated for erenumab and fremanezumab separately. As a control group, we included people with migraine with similar distribution in gender, age, and migraine diagnosis. These patients did not use any migraine prophylactic treatment or other medication that would possibly influence their BP.

Results and Study Limitations
Both systolic and diastolic BP were increased at all time points T1-T4 compared with T0 (p < 0.001). The maximum estimated increase in mean systolic BP was 5.2 mm Hg (95% CI 3.1–7.5). The maximum estimated increase in mean diastolic BP was 3.5 mm Hg (95% CI 2.0–4.9). In the erenumab group, both systolic and diastolic BP were increased at all time points compared with T0. The maximum estimated increase in mean systolic BP was 9.1 mm Hg (95% CI 6.2–12.0, p < 0.001). For diastolic BP, this was 6.3 mm Hg (95% CI 4.4–8.3, p < 0.001). For fremanezumab, systolic but not diastolic BP was increased compared with T0 at T1 (3.8 mm Hg [95% CI 1.1–6.6, p = 0.006]) and T2 (4.6 mm Hg [95% CI 1.5–7.7, p = 0.004]). Four patients (3.7%) with normal BP at T0 required antihypertensive treatment after erenumab was started. Limitations of the study include measurements of BP in the doctor’s office, which may lead to an overestimation of the number of patients with high BP, and missing follow-up BP measurements, which could have influenced the results.

Study Funding and Competing Interests
This study did not receive targeted funding. The authors report no competing interests. Go to Neurology.org/N for full disclosures.
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Neurology 2022;99;e1897-e1904 Published Online before print October 4, 2022
DOI 10.1212/WNL.0000000000201008

This information is current as of October 4, 2022

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