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A Randomized, Double-Blind Comparison of 10 and 20 mg Lercanidipine in Patients With Stable Effort Angina: Effects on Myocardial Ischemia and Heart Rate Variability

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We evaluated the anti-ischemic action and the effects on autonomic function of lercanidipine, a long-acting dihydropyridine calcium antagonist, in 25 patients with stable effort angina in a randomized, double-blind, parallel trial. After a 2-week placebo run-in period, patients entered a 2-week treatment period with 10 or 20 mg of lercanidipine once daily. During the placebo run-in period and at the study end, the patients underwent clinical examination, electrocardiography, exercise tests, 24-hour Holter electrocardiography for long-term heart rate variability evaluation, and short-term spectral analysis of heart rate and systolic blood pressure variability and plasma epinephrine and norepinephrine levels at rest and during tilting. Results showed that time to onset of ST segment depression ≥1 mm was significantly increased by both drug doses. No significant change was recorded in the average hourly heart rate after treatment with both 10 and 20 mg of lercanidipine. During the 24-hour recordings, no significant change was observed in low-frequency power, high-frequency power, or low frequency/high frequency. In the standing position, there was a significant increase in plasma norepinephrine and epinephrine concentration in both groups, and no change in the supine position after 10 and 20 mg of lercanidipine. When considering short-term heart rate variability, no significant difference was observed in either treatment group in low frequency, high frequency, or their ratio on electrocardiographic R-R spectra. The blood pressure spectral component was also unchanged. In conclusion, lercanidipine is effective in reducing ischemia in patients with stable effort angina. Moreover, lercanidipine does not cause adrenergic activation, which is the main mechanism hypothesized to explain the negative effect on cardiovascular mortality assigned to short-acting dihydropyridine calcium antagonists.

Keywords: calcium-channel blocker, lercanidipine, stable effort angina, heart rate variability, myocardial ischemia, exercise tests.