Electrocardiographic T wave abnormalities identify patients with previous lateral wall myocardial infarction and circumflex artery disease

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INTRODUCTION The electrocardiographic diagnosis of previous lateral myocardial infarction (MI) is based on a prominent R wave in V_1 and/or lateral Q waves of necrosis. We tested whether T wave abnormalities play a role in diagnosing a previous lateral MI and/or left circumflex (LCx) artery occlusion.

METHODS We studied 166 patients with known or suspected ischemic heart disease who underwent 12-lead electrocardiogram, rest myocardial perfusion scintigraphy, and coronary arteriography within 90 days. Patients with previous coronary artery bypass surgery, bundle-branch block, ventricular hypertrophy, or paced rhythm were excluded.

RESULTS A lateral MI was present in 18 patients (11%), a LCx occlusion in 32 (19%). No patients showed lateral Q waves of necrosis and only one had a prominent R wave in V_1. A $T_{L1}+T_6$ index (T wave amplitude in lead 1 plus its amplitude in V_6) ≤ 0 mV accurately detected a lateral MI (sensitivity 44%, specificity 80%) and LCx occlusion (sensitivity 47%, specificity 83%). A T_2-T_6 index (T wave amplitude in lead V_2 minus its amplitude in V_6) ≥ 0.6 mV also detected a lateral MI (sensitivity 33%, specificity 92%) and LCx occlusion (sensitivity 28%, specificity 93%). $T_{L1}+T_6$ was the only independent predictor of lateral MI or LCx occlusion at multivariate analysis (area under the receiver operating characteristics curve 0.72 and 0.74, respectively). Serum potassium values did not show any association with T wave abnormalities.

DISCUSSION In a patient group in which secondary abnormalities were excluded, T wave abnormalities identify patients with previous lateral MI and LCx disease.

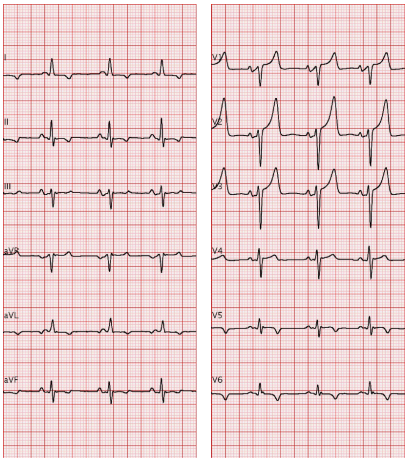

Figure 1. Electrocardiogram of a patient with a previous lateral infarction and LCx disease. The T wave is tall in V_2 (1.3 mV), negative in V_6 (- 0.2 mV) and in lead 1 (- 0.2 mV). Consequently, the T_2-T_6 index is 1.5 mV and the TL1+T_6 index -4 mV. Although ST segment elevation with upward concavity in V_2-V_3 might suggest early repolarization, T wave changes indicate a previous lateral infarction and a LCx disease with a specificity > 90%.