**Introduction:** Detection of left ventricular hypertrophy (LVH) via the electrocardiogram (ECG) is still of value in cardiovascular risk stratification, whereas secondary ST-T changes due to LVH, which are uniquely determined from the ECG, are known to increase this risk. Improvement of criteria for LVH is still of value therefore. There are more than 30 different ECG criteria that can be used to determine the presence of LVH. This study therefore was aimed at comparing different criteria, including the classic Sokolow-Lyon (SV1 + RV5) and the relatively newer Cornell (SV3 + RaVL) criteria both as voltage criteria per se and voltage × QRS duration products, as well as point scoring systems such as the Romhilt Estes (RE), Perugia, and the University of Glasgow age- and sex-modified RE (UGRE) score. Regression models for estimating left ventricular (LV) mass from the ECG were also assessed.

**Methods:** Patients undergoing echocardiography (echo) were recruited from the Cardiology Department in Glasgow Royal Infirmary. The echo LV mass derived using the American Society of Echocardiography method was used as the gold standard. This was indexed to body surface LV mass derived using the American Society of Echocardiography from the Cardiology Department in Glasgow Royal Infirmary. The echo Perugia, and the University of Glasgow age- and sex-modified RE (UGRE) products, as well as point scoring systems such as the Romhilt Estes (RE), Perugia, and the University of Glasgow age- and sex-modified RE (UGRE) score. Regression models for estimating left ventricular (LV) mass from the ECG were also assessed.

**Results:** Fifty-one men and 76 women (mean age, 60.3 ± 18.5 years) were recruited as a test set. Of these, 33 men and 34 women had LVH by echo. For voltage-only criteria, the Lewis index had the greatest sensitivity of 12%. However, when voltage criteria were adjusted to 95% specificity, the Cornell Index produced the greatest sensitivity at 19%. The best voltage duration product was that of Cornell, which gave 19% sensitivity adjusted to 95% specificity. The point scoring systems proved to be the most accurate, with the Perugia being 22% and the UGRE score being 24% sensitive both at 95% specificity. Electrocardiogram-derived LV mass was found to have a wide variation from the echo-derived LV mass and, therefore, was a poor predictor of LV mass. When the Cornell product was combined with UGRE score, sensitivity increased to 30% with a corresponding 93% specificity.

**Conclusions:** In general, sensitivity for LVH was low, compared with that found in other studies, but the relative value of different criteria is important. Voltage-based ECG criteria for LVH are the worst-performing, whereas scoring systems are the best, with voltage duration products intermediate. However, the combination of the University of Glasgow modified RE score and the Cornell product gave the best overall result of 30% sensitivity and 93% specificity. This is the first such study to compare the combination of scoring systems and voltage duration products for detecting ECG LVH, and it shows that the sensitivities of established criteria can be improved relatively by 25% and 58%, respectively, with little loss of specificity, when individual strategies are combined.

**References**

**Poster**

**ECG-15**

**Evaluating the efficacy of thrombolytic therapy in ST-elevation myocardial infarction by using ischemia grade on the enrollment electrocardiogram**

Kamil Gälgen, Murat Ersanli, Barış Özkün, Alev Arat, Isl Uzunhasan, Tevfik Gürmen

Institute of Cardiology, Istanbul, Turkey

**Introduction:** Patients with ST-elevation myocardial infarction have different prognoses compared to admission electrocardiogram. Patients with grade III ischemia on admission electrocardiogram have higher mortality and larger infarct size than patients with grade II ischemia. We compared achievement of thrombolytic therapy in these 2 groups.

**Methods:** In this retrospective study, we enrolled a total of 46 patients with myocardial infarction, who received thrombolytic therapy. Patients were divided in 2 groups based on enrollment electrocardiogram (grade III ischemia): (1) absence of S wave below isoelectric baseline in leads that usually have a terminal S configuration or (2) ST-J point amplitude greater than 50% of the R-wave amplitude in all other leads (n = 22). To be included the grade III group, grade III criteria in more than 2 adjacent leads were required. Patients with ST elevation but without grade III criteria were classified as having grade II (n = 24). ST resolution above 50% in maximal ST-elevation lead at 90 minutes for TPA and 120 minutes for SKZ was taken as a reperfusion criteria.

**Results:** Reperfusion achievement by using thrombolytic therapy was less in patients with grade III ischemia (n = 22) than grade II (n = 24). In grade III group, reperfusion therapy was unsuccessful in 8 patients (36%). This was 5 in grade II group (20.8%). There were 7 patients with anterior myocardial infarction in grade III group. Reperfusion therapy was unsuccessful in 4 patients (58%) in this group. There were 8 patients with anterior myocardial infarction in grade II group. Reperfusion therapy was unsuccessful in 2 patients (25%) in this group.

**Conclusions:** Although thrombolytic therapy seems to be more successful in grade II group than in grade III, it did not reach statistical significance.

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