

## Correlation of heart rate and radionuclide index of left ventricular contraction and relaxation

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Since the cardiac function indices derived from radionuclide ventriculography (RNV) are considered to depend on the heart rate, we studied the relationship between systolic or diastolic indices and heart rates in patients with normal RNV and devised a method of correcting these indices according to the heart rate.

For the systolic indices, the heart rate showed significant correlation with ET ( $r=-0.640$ ), PER ( $r=0.791$ ) and TPE ( $r=-0.401$ ) but not with EF, 1/3 EF, MNSER or 1/3 MNSER. For the diastolic indices, the heart rate correlated well with FT ( $r=-0.938$ ), RFT ( $r=-0.736$ ), SFT ( $r=-0.803$ ), 1/3 FF ( $r=-0.758$ ), PFR ( $r=0.759$ ), 1/3 PFR ( $r=0.742$ ) and TPF ( $r=-0.389$ ) but not with AFT, 1/3 MNDFR or AFF.

These results indicate that many systolic and diastolic indices derived from RNV are affected by the heart rate. So when cardiac function is evaluated with the use of radionuclide indices, those which are independent of the heart rate should be used, or they should be corrected for the heart rate.

As a method of correction, we proposed a rotating method obtained by manipulation of the regression equation of heart rates and indices. This new method is certain and easier to use when the correcting equations are set into a computer program.

**Key words:** radionuclide index, left ventricular contraction, diastolic function, relation of heart rate