

**Phase plane (volume to volume-time function loop) display of data
from radionuclide ventriculography obtained
by single cardiac probe system**

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To assess the left ventricular (LV) performance more sensitively, a new display method of phase plane (PP), displaying volume and volume-time function (dV/dt) in a single image, was applied to radionuclide ventriculography obtained by a single cardiac probe system. The sampling interval was 10 msec and the data acquisition time was 60 sec. The LV volume curve was smoothed by fitting a fourth order polynomial curve of Fourier's analysis. Then the dV/dt was calculated. In this single image PP display, the width of the horizontal axis indicates relative LV volume, and the height of the vertical axis indicates dV/dt . The direction of the rotation of this loop is clockwise. We classified 126 patients with various heart diseases into seven groups, according to the configuration of the loop. The most interesting finding was that the distortion of the loop during diastole was frequently seen in patients with hypertension and angina pectoris, whereas their ejection fraction was within normal limits. We concluded that the single image PP display is a sensitive method for assessing the abnormality of the LV function, not only by evaluating the conventional parameters, but also by analyzing the configuration of the volume to volume-time function loop.

Key words: Phase plane, Radionuclide ventriculography, Single cardiac probe system, Ejection fraction, Atrial contribution