Summary

Left Ventricle Expands Maximally Preceding End-diastole
—Radionuclide Ventriculography Study—

Osamu Horinouchi
Second Department of Internal Medicine, Kagoshima University School of Medicine

It has been considered that left ventricle (LV) expands maximally at the end-diastole. However, is it exactly coincident with this point? This study was aimed to determine whether the maximal expansion of LV coincides with the peak of R wave on electrocardiogram. Thirty-three angina pectoris patients with normal LV motion were examined using radionuclide ventriculography. Data were obtained from every 30 ms backward frame from the peak of R wave. All patients showed the time of maximal expansion preceded the peak of R wave. The intervals from the peak of R wave and the onset of P wave to maximal expansion of LV was 105 ± 29 ms and 88 ± 25 ms, respectively. This period corresponds to the timing of maximal excursion of mitral valve by atrial contraction, and the centripetal motion of LV without losing its volume before end-diastole may be interpreted on account of the movement of mitral valve toward closure. These findings suggest that LV expands maximally between P and R wave after atrial contraction, preceding the peak of R wave thought conventionally as the end-diastole.

Key words: Maximal expansion of left ventricle, End-diastole, Radionuclide ventriculography, Backward gating.