

## Dispersion of $T_{\text{peak}} - T_{\text{end}}$ from Multichannel Magnetocardiographic Measurements for Detection of Ischemia

H. Kwon<sup>a</sup>, K. Kim<sup>a</sup>, Y. H. Lee<sup>a</sup>, J. M. Kim<sup>a</sup>, H. K. Lim<sup>a</sup>, Y. K. Park<sup>a</sup>, N. Chung<sup>b</sup>, Y. G. Ko<sup>b</sup>,  
B. Joung<sup>b</sup>, J. B. Kim<sup>b</sup>, J. R. Cho<sup>b</sup>

<sup>a</sup> Bio-signal Research Center, Korea Research Institute of Standards and Science, Daejeon, Korea

<sup>b</sup> Cardiology Division, Department of internal medicine, Yonsei University Medical College, Korea

<sup>c</sup> Superconductivity Research Center, Daejeon, Korea

From canine studies, it has been suggested that full repolarization of the epicardium coincides with the peak of the T wave and that of the subendocardially located M cells coincides with the end of the T wave. From the recording of monophasic action potentials in swine, the ECG interval from the peak to the end of the T wave ( $T_{\text{peak}} - T_{\text{end}}$ ) was found to be highly correlated with transmural dispersion of ventricular repolarization. In this preliminary study, we analyzed the dispersion of  $T_{\text{peak}}$  and  $T_{\text{end}}$  using magnetocardiography (MCG) of the normal subjects and MI patients. MCGs were recorded by multichannel SQUID system in a magnetically shielded room. As results, we found statistical differences of maximal  $T_{\text{peak}} - T_{\text{end}}$  measuring an interval from the earliest  $T_{\text{peak}}$  to the latest  $T_{\text{end}}$  among the all MCG channels between the normal subjects and the MI patients. The results demonstrate that maximal  $T_{\text{peak}} - T_{\text{end}}$  may be useful in diagnosis of ischemic disease.

Keywords: SQUID, Magnetocardiography, coronary artery disease, dispersion of ventricular repolarization