INFLUENCE OF CHOSEN END-SYSTOLIC REFERENCE ON CALCULATED MYOCARDIAL THICKENING FRACTION IN RABBITS. A.V. Cideciyan, R.N. Sampsell, and H.N. Mayrovitz. Miami Heart Institute, Miami Beach, FL 33140 and Dept Biomedical Eng, Univ of Miami.

A microcomputer method in combination with epicardial Doppler crystals were used to measure systolic thickening fraction (TF) in open chest rabbits in a 45 min occlusion, 6 hr reperfusion study (n=12). Three reference points for end systole were compared; negative peak left ventricular pressure (Ndpd), and 10 ms and 20 ms before Ndpd. TF measurements were made in ischemic (TFI) and non-ischemic (TFN) myocardium. The TFI data using the three references were statistically different (p<0.05) but the absolute differences in mean values were not large, ranging from 15.4 to 12.7 under basal conditions. In neither TFI nor TFN were there any differences in the variance of the data among the 3 reference points. Percentage (%) change in TF from baseline, which is a common way of reporting functional changes, was also calculated and compared for each reference. The variances among the %TFI did not differ at any time. However, at the end of occlusion and early in reperfusion, the %TFI data using the 20 ms reference proved to have a significantly larger variance than the other two references. We conclude that an inappropriate choice of end-systolic reference might significantly affect data interpretation in certain critical applications, but that each reference evaluated yields similar absolute data.

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