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COMPARISON OF DIGITAL AND CINEANGIOGRAPHY FOR DIAGNOSIS OF CORONARY STENOSES

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Recent studies have demonstrated the feasibility of quantitating coronary artery stenoses from single frame images of digital subtraction angiograms (angios) in which lesions were preselected for the observer s. In order to determine whether digital angios also are adequate for the detection of coronary stenoses from unselected studies, 4 observers reviewed 30 digital angios and 30 film-based cineangios. Each observer independently measured percent diameter stenosis of suspected lesions using calipers. Digital angios were obtained with intra-coronary injection of 4-6ml of contrast at 8 frames/sec and stored in an unsubtracted format to permit post processing by mask mode subtraction, pixel magnification and edge enhancement. After processing, digital images were transferred to 3/4 inch videotape for review. There were 4 angios in which all 4 observers saw < 25% lesion on both digital and cine studies. Of the 32 lesions which measured > 25% stenosis by at least one observer on either the digital or cine angio, there was no significant difference between the mean stenosis measured from digital ($53.3 \pm 30.7\%$) vs cine ($52.0 \pm 31.1\%$). Interobserver variability was assessed by the standard deviation (SD) between the 4 observers. The mean of the 32 standard deviation was $9.7 \pm 7.7\%$ for cine stenoses and $10.4 \pm 7.4\%$ for digital angios ($p = NS$). We conclude that coronary angios obtained and processed digitally and stored on 3/4 inch videotape compare favorably with cineangios for detection and quantitation of coronary stenoses.