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COMPARISON OF DIGITAL AND CINEANGIOGRAPHY FOR QUANTITATION OF CORONARY STENOSES

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To determine the feasibility of digital acquisition and storage of coronary angiograms (angios), we used a digital image (DSA) processing computer which is capable of storing the 512x512x8 bit matrix images in real time on a 400 megabyte digital disc. Angios were obtained with selective coronary injection of 6-8ml of contrast at 8 frames/second and stored in an unsubtracted format to permit post-processing by mask mode subtraction, pixel magnification and edge enhancement. Digital and standard cine angios obtained in the same projection were evaluated by four observers who independently measured percent diameter stenosis using calipers. The two techniques were equivalent within $\pm 10\%$ for 30% of the 17 lesions. The degree of stenosis was tighter on digital angio in 53% of lesions and was less severe on the digital angio in 17% of the lesions. Interobserver variability was assessed by the standard deviation (SD) between the 4 observers. The mean of the SD was 7% for cineangio stenoses and 9% for digital angio (p=NS). Mean stenosis for all lesions by DSA was 58% vs 51% by cine (p<.05). Thus, real time digital acquisition of coronary angios is feasible and allows easy quantitation of coronary diameter narrowing.