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PORTABLE INTRAVENOUS DIGITAL ANGIOGRAPHY FOR BEDSIDE ASSESSMENT OF LEFT-VENTRICULAR FUNCTION

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## ABSTRACT

**PORTABLE INTRAVENOUS DIGITAL ANGIOGRAPHY FOR BEDSIDE ASSESSMENT OF LEFT VENTRICULAR FUNCTION.**

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First pass right and left ventriculograms were obtained in 10 patients (pts) utilizing a portable digital angiography computer and a C-arm x-ray unit modified for portable digital studies. Six pts were studied at bedside in the coronary care unit and 4 were studied in the catheterization lab with this portable system. Thirty milliliters of Vascoray was either hand injected through a 6-F introducer sheath placed in the femoral vein, or power injected at 8ml/sec through the proximal port of a Swan-Ganz catheter. Digitally subtracted images were obtained in a 512 x 512 x 8 bit matrix in real time at 30 frames/second using fluoroscopy at 10 to 20 mA and 65 to 80 kVp. Satisfactory quality images were obtained in 8 of 10 pts. Right and left ventriculograms were analyzed for ventricular volumes by the area-length method and ejection fraction (EF) was computed. In 6 pts, LV EF measurements were compared to values derived from standard cineangiograms. The correlation coefficient between the two methods for EF was  $r = 0.86$ . In 5 pts who had hemodynamic monitoring, mean pulmonary artery diastolic pressure increased an average of 3.0 mmHg post injection, ( $p < 0.05$ ). We conclude that first-pass digital subtraction ventriculograms can be obtained at bedside in the critical care setting using a portable digital angiography system. Because this method provides most of the features of nuclear ventriculography with significantly better image resolution, it may find wide application for assessing LV function in the critical care environment.