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OBJECTIVE: To assess cardiac output in pediatric patients with the pressure recording analytical method (PRAM) and the Doppler echocardiography method. PRAM derives cardiac output from beat-by-beat analysis of the arterial pressure profile (systolic and diastolic phase) in the time domain.

DESIGN: A prospective observational study.

SETTING: Pediatric intensive care unit at a tertiary care children's hospital.

PATIENTS: Forty-eight patients between the ages of 1 month and 18 yrs.

INTERVENTIONS: Femoral or radial artery catheterization and mechanical ventilation.

MEASUREMENTS AND MAIN RESULTS: Cardiac output was simultaneously estimated by Doppler echocardiography and PRAM. Cardiac output values obtained by Doppler echocardiography (2.7 +/- 1.6 L/min, range 0.92-8.20) were significantly correlated with those estimated by PRAM (2.6 +/- 1.7 L/min, range 0.89-7.48; $r^2 = .99$, $p < .01$). The mean difference between the two estimates was 0.12 +/- 0.27 L x min⁽⁻¹⁾ (95% confidence interval, -0.54 to 0.77 L x min⁽⁻¹⁾).

CONCLUSIONS: In the range of ages evaluated, PRAM provides reliable estimates of cardiac output when compared with noninvasive techniques.

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