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Hepatic venous flow assessed by transesophageal echocardiography.

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Abstract

Systemic venous flow patterns are easily assessed by transthoracic echocardiography for evaluation of right heart dynamics. However, the transthoracic approach cannot be used in patients undergoing thoracic surgery. The present study describes a method for obtaining hepatic venous flow velocity with transesophageal Doppler echocardiography. Twenty-nine patients were studied with transthoracic echocardiography just before cardiac surgery and with transesophageal echocardiography during surgery. Hepatic venous flow velocity recordings were obtained in 14 of 29 patients with the transthoracic and in all 29 with the transesophageal approach. Timing of flow pattern was similar with the two methods, but recordings obtained with transesophageal echocardiography were inverted compared with those obtained with transthoracic echocardiography as a result of the difference in probe location in relation to flow direction. The time-velocity integrals obtained with the two techniques did not differ significantly; for the transthoracic and transesophageal approaches, they were, respectively, 7.3 +/- 3.4 versus 5.7 +/- 4.4 for systolic flow; 1.0 +/- 1.0 versus 0.5 +/- 0.6 for end-systolic flow reversal; 4.7 +/- 2.3 versus 3.7 +/- 1.7 for diastolic flow; 2.0 +/- 1.8 versus 1.5 +/- 1.5 for atrial flow reversal and 1.9 +/- 1.0 versus 1.7 +/- 1.1 for systolic/diastolic ratio. In conclusion, hepatic venous flow values are obtained more frequently and with better quality by transesophageal than by transthoracic echocardiography. The flow patterns and velocity integrals are similar with both methods and previous experience with transthoracic echocardiography should be applicable to the transesophageal technique. Transesophageal Doppler echocardiography therefore has potential for studying right heart dynamics during anesthesia and surgery.

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