

# Hepatic vascular exclusion and hepatic resection

T. E. Starzl, M.D., *Pittsburgh, Pa.*

*From the Department of Surgery, University of Pittsburgh Health Center, University of Pittsburgh, Pittsburgh, Pa.*

THE ARTICLE BY Delva et al.<sup>1</sup> in this issue contains important information of two kinds. First, the earlier contention by Huguet et al.<sup>3</sup> that the human liver is less sensitive to normothermic ischemia than had been thought was confirmed unequivocally. Such knowledge may embolden a surgeon who is having bleeding or other technical difficulties during a hepatic resection to carry out portal triad cross-clamping (the Pringle maneuver) earlier rather than later in the case.

In addition, the tolerance of the human cardiovascular system to portal and inferior vena caval obstruction was demonstrated. From experience with liver transplantation,<sup>4</sup> it has been learned that decreases in cardiac output can be expected with such venous obstructions, that acidosis develops, and that hypokalemia can follow hepatic revascularization and last for many hours. In the context of transplantation and also under the conditions of the resections reported by Delva et al.,<sup>1</sup> the ability of the human to survive this kind of insult has been remarkable. The maneuver of occlusion of the high abdominal aorta to prevent input into the engorged venous beds has not seemed to be absolutely necessary with either kind of operation.

Although the French workers have provided invaluable information that can be applied under unusual and unexpected circumstances, the need for hepatic

vascular isolation must be rare. In our experience, vascular isolation has been used only two or three times during hepatic resection. The approach was abandoned by us and by Fortner et al.<sup>2</sup> because it was felt to be so complex that it did not really facilitate the average operation. The 25% perioperative mortality rate in the series by Delva et al.<sup>1</sup> may have reflected the advanced nature of the lesions or the poor quality of the hepatic parenchyma, but the poor function of the hepatic remnant that was mentioned could have been caused in part by ischemic injury, which differed from that with the technique by Fortner et al.<sup>2</sup> in that it was normothermic.

Thus the technical steps used by the French surgeons should be accepted as potentially helpful in the occasional case and in the event of a technical calamity but not for routine use.

## REFERENCES

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Supported by research grants from the Veterans Administration and by Project grant AM29961 from the National Institutes of Health.

Accepted for publication June 23, 1983.

Reprint requests: T. E. Starzl, M.D., 3601 Fifth Ave., 103 Falk Clinic, Pittsburgh, PA 15213.