

Portal Hypertension Is Associated with Congestive Encephalopathy and Delirium after Cardiac Surgery

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Background

Venous congestion might lead to congestive encephalopathy after cardiac surgery. However, objective signs of congestion have yet to be associated with delirium. Portal vein flow pulsatility is a congestion marker that may identify a sub-group of patients at risk.

Methods

A retrospective study followed by a prospective study were performed in cardiac surgery patients. Adult patients who underwent portal Doppler by the attending physician during usual care in the intensive care unit were included in the retrospective cohort. For the prospective cohort, patients had a cognitive and echocardiographic evaluation the day before surgery and daily for three days after surgery. Delirium was independently assessed by the nursing staff in the prospective cohort.

Results

A total of 237 patients in the retrospective and 145 in the prospective cohort were included for which 1074 portal Doppler evaluation were performed. An association was found between delirium and portal vein pulsatility in the retrospective cohort (OR:2.69 CI:1.47-4.90 p=0.001). In the prospective cohort, significant associations were found between the presence of portal vein pulsatility and the development of cognitive dysfunction and asterixis assessed by the investigators (OR:2.10 CI:1.25-3.53 p=0.005 and OR:5.19 [CI:2.27; 11.88] p<0.001), and delirium detected by the nursing staff (HR:2.63 CI:1.13-6.11 p=0.025). Higher NT-pro-BNP measurements (OR:4.03 [CI: 1.78-9.15] p=0.001) and cerebral desaturations (OR:2.54 [CI:1.12-5.76] p=0.03) were associated with cognitive dysfunction.

Conclusion

This data presents an association between hepatic congestion, delirium and encephalopathy in cardiac surgery patients. Further studies should explore if those neurological complications may have a congestive origin in some patients.