Category :**Cardiovascular: Monitoring**

A19 - ***Portal vein doppler in high-risk cardiac surgery patients: a multicenter prospective cohort study***

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Introduction:

Portal vein Doppler pulsatility measured by transesophageal echocardiography is a promising imaging ultrasound biomarker of the hemodynamic impact of right ventricular failure in cardiac surgery. The objective of the study was to determine whether the presence of abnormal portal vein flow pulsatility is associated with a longer duration of invasive life support and adverse post-operative outcomes after cardiac surgery in high-risk patients.

Methods:

Multicenter cohort study using pulsed-wave Doppler assessments of the portal vein flow before initiation of cardiopulmonary bypass (CPB) (T1) and after CPB separation (T2). Abnormal pulsatility was defined as a portal pulsatility fraction (PPF) of ≥50% (PPF50). The primary outcome studied was the cumulative time in perioperative organ dysfunction (T_{POD}) requiring invasive life support during the first 28 days after surgery. Secondary outcomes included major post-operative complications.

Results:

373 patients were included in the study. PPF50 was present in 22.0% of assessments at T1 and in 24.9% at T2. PPF50 was associated with a longer T_{POD} (T1: median 27 [IQR, 11-72] versus 19 hours [IQR, 8.5-42], p=0.02; T2: median 27 [IQR, 11-61] versus 20 hours [IQR, 8-42], p=0.006). After adjusting for confounders, only PPF50 at T1 showed significant association with T_{POD}. The detection of PPF50 at T2 was associated with a higher rate of major post-operative complications (36.4% versus 20.3%, p=0.006). Moreover, *de novo* PPF50 at T2 was associated with the highest rate of major post-operative complications (40.5%).

Conclusion:

The presence of PPF50 in cardiac surgery is associated to have a longer duration of life support therapy and complications after cardiac surgery in high-risk patients.

Consent to Publish: Study protocol was approved by the research and ethics committee of each participating institution. Written informed consent was obtained from all subjects.

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