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Safety, Timing and Outcomes of Early Postoperative Cardiac Catheterization Following Congenital Heart Surgery

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Safety, Timing and Outcomes of Early Postoperative Cardiac Catheterization Following Congenital Heart Surgery

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Role in this project: I did the chart review and some of the statistical work.

Background: Early postoperative (<6weeks) cardiac catheterization (EPOCC) has been considered high risk and often delayed. Recently, the safety of EPOCC has been demonstrated. The optimal timing of catheterization and its outcomes in struggling postoperative patients remains uncertain.

Objective: To describe EPOCC in our center and its impact on length of stay (LOS), number of mechanical ventilation days, number of ECMO days, and catheter-based interventions.

Methods: This is a retrospective cohort study of patients who underwent cardiac surgery between 01/01/2010 and 12/31/2019 and EPOCC within 30 days after surgery. Cohorts were early EPOCC (≤ 72 hr) vs late EPOCC (> 72 hr). Data on timing, indication, and complications of EPOCC; days of mechanical ventilation and ECMO; and CICU/total hospital LOS were collected. Data was analyzed using chi-square and Student's t-test, or appropriate nonparametric tests to compare categorical and continuous variables, respectively.

Results: In our study, 141 patients met inclusion criteria. Median time to EPOCC was 10 days with early EPOCC in 26 patients (18%) and late EPOCC in 155 patients (82%). In total, 70 (50%) patients underwent catheter intervention at the time of EPOCC (early EPOCC 9 (13%) vs late EPOCC 61 (87%), $p=0.09$). Complications occurred in 10 (7%) patients (early EPOCC 6 (60%) vs late EPOCC 4 (40%), $p=0.09$). None included stroke or death. There were no statistically significant differences in median CICU (17.9d vs 28d, $p=0.09$) or hospital LOS (29.6d vs 49.9d, $p=0.16$), days of ventilation (11.4d vs 13.4d, $p=0.11$), or days of ECMO (7.0d vs 15d, $p=0.06$) in the early vs later groups, respectively.

Conclusions: The occurrence of complications with EPOCC in our cohort was low, consistent with previous works. While there were no statistically significant differences in outcomes in patients with early vs late EPOCC, there was a trend towards significance with longer CICU LOS and days of

ECMO in patients with late EPOCC. We speculate that early EPOCC may result in decrease in ECMO days, CICU LOS, and hospital LOS. Further investigation is warranted.