

Open Chest Duration Following Congenital Cardiac Surgery Increases Risk for Surgical Site Infection. Z Feng, BS; S Schofield, BBA, E Downs, MD, S Newman, NP, D Campbell, MD, M Mitchell, MD, J Jagers, MD, M Stone, MD PhD, Department of Medicine, University of Colorado, Denver, CO

Surgical site infections (SSI) following congenital heart surgery (CHS) remain a significant source of morbidity. Delayed sternal closure (DSC) is often required to minimize the potential for hemodynamic instability. While repeated open chest procedures and ECMO are established risk factors for SSI following DSC, the effect of open chest duration (OCD) remains less well defined. Thus, the purpose of this study was to evaluate the incidences of SSI among patients with DSC versus primary chest closure (PCC) and the effect of OCD on SSI occurrence.

A retrospective review of our institutional Society of Thoracic Surgeons dataset was performed to identify patients undergoing CHS at our institution between 2015-2020. Patients with SSI were identified within a prospectively collected institutional dataset and matched accordingly. Incidences of SSI were compared between DSC and PCC patients utilizing bivariate analysis. DSC patients were evaluated to determine the association of OCD on the incidence of SSI.

2582 operations were performed at our institution between 2015-2020, including 195 DSC and 2387 PCC cases. The incidence of SSI within the cohort was 1.8%. DSC patients had significantly higher incidences of SSI (8.7%) than PCC patients (1.3%, $p=0.041$, OR:6.7). Within the DSC cohort, patients that went on to develop SSI had a longer OCD (mean=24.7 days) when compared to non-SSI DSC patients(mean=6.4 days).

The incidence of SSI is higher in DSC patients compared to PCC patients. Prolonged OCD presents a potentially modifiable risk factor for SSI predisposition. These data support dedicated, daily post-operative assessment of candidacy for chest closure to minimize the risk of SSI.