Effects of aprepitant on post-operative nausea and vomiting in patients with congenital heart disease undergoing cardiac surgery or catheterization procedures

Introduction
For patients undergoing cardiac surgery and catheterization procedures, severe post-operative nausea and vomiting (PONV) can occur. Aprepitant, a neurokinin-1 receptor blocker, is safe and effective at preventing PONV resistant to standard therapies.

Methods
Patients with a history of severe PONV presenting for cardiac procedures from 1/1/2018 to 6/1/2021 who received aprepitant pre-operatively were identified. A retrospective chart review was performed. Primary outcomes were incidence of PONV and PONV-related complications.

Results
Seventeen patients were included with a mean age of 16.0 years at the time of their initial procedure and 17.5 years when they received aprepitant. After the control procedure 64.7% of patients required rescue anti-emetics. When this group of patients received aprepitant pre-operatively at their subsequent procedure, only 17.6% required rescue medication ($p = 0.005$). Similarly, 64.7% of patients suffered at least one PONV-related complication after the control procedure compared to 5.9% after the aprepitant procedure ($p = 0.0003$). Specifically, unplanned ICU admission due to severe PONV after catheterization procedures decreased from 55.6% (5/9) in the control group to 0 after these patients were treated pre-emptively with aprepitant ($p=0.01$). There were significant decreases in PONV-related complications including delayed po intake and delayed ambulation ($p=0.04$) in the aprepitant group compared to the control group.

Conclusions
Preoperative aprepitant administration in patients undergoing cardiac procedures with a history of severe PONV significantly reduces the incidence of PONV and PONV-related complications. Decreasing these complications will likely improve the surgical experience for patients and families while also decreasing hospital costs and improving efficiency.