## Documented Sustained Response of Intravenous Amisulpride for Rescue Treatment of Postoperative Nausea and Vomiting: Results from a Phase III Trial Primary Investigators: Tricia A. Meyer PharmD FASHP FTSHP Texas A&M School of Medicine, Bryan, Texas Co-Investigators: Edith Liang PharmD BCCCP, Lynn H. Bichajian MD

**Introduction:** Amisulpride is a potent and selective dopamine  $D_2/D_3$  receptor antagonist approved for prevention and rescue treatment of postoperative nausea and vomiting (PONV). Rescue treatment of PONV is defined as treatment after failure of PONV prophylaxis. Amisulpride has a binding affinity in the range of 1-3 nM at the  $D_2/D_3$  receptor sites. It has minimal affinity for other dopamine and non-dopamine receptor subtypes, decreasing the chances for off-target receptor adverse effects.

**Identification of the problem:** The duration of antiemetic action of IV amisulpride 10 mg for rescue treatment of PONV is unknown.

**Purpose of the Study**: The purpose of this analysis was to evaluate the duration of antiemetic action of IV amisulpride 10 mg for rescue treatment of PONV.

**Methodology:** This was a prespecified pharmacokinetic (PK) subset of patients (N=27 out of 230 patients) from a phase III, randomized, multicenter, double-blind, placebo-controlled, parallel-group study in adult surgical patients with moderate to high risk of PONV who failed antiemetic prophylaxis. The choice of antiemetic prophylaxis was at the discretion of the investigator. Plasma amisulpride samples were drawn after receiving the scheduled single dose of IV amisulpride 10 mg administered over 1-2 minutes given at time of first episode of PONV. These samples were collected at 5 and 30 minutes, and 2-, 6-, and 24 hours following study drug administration.

**Results:** The mean plasma concentration of IV amisulpride 10 mg in the PK subset of patients at 24 hours remained above 5 nM. Supratherapeutic amisulpride plasma levels were thus present for at least 24 hours after a single 10 mg dose.

**Discussion:** Supratherapeutic plasma concentrations were maintained at 24 hours, exceeding the binding affinity for amisulpride at  $D_2/D_3$  receptor sites (1-3 nM). A single dose of IV amisulpride 10 mg exhibited a sustained antiemetic effect beyond 24 hours for PONV rescue compared to placebo.

**Conclusion:** In the PK subset of patients, a single dose of IV amisulpride 10 mg maintained supratherapeutic plasma concentrations at 24 hours.

**Implications for perianesthesia nurses and future research:** This allows perianesthesia nurses to understand the mechanism and duration of action of amisulpride when used for the rescue treatment of PONV. Further investigation is warranted to determine further details of the durable antiemetic effect of amisulpride.