It is our hope that commercially available pumps will soon incorporate these new models to improve the performance of this technique in the obese population” Cortínez and Anderson (2018).

Abstract:

PURPOSE OF REVIEW: The use of conventional pharmacokinetic parameters sets ‘models’ derived from nonobese patients has proven inadequate to administer intravenous anesthetics in the obese population and is commonly associated with higher than anticipated plasma propofol concentrations when used with target (plasma or effect site) controlled infusion pumps. In this review we will describe recent modeling strategies to characterize the disposition of intravenous anesthetics in the obese patient and will show clinically relevant aspects of new model’s performance in the obese population.

RECENT FINDINGS: Because clearance of a drug increases in a nonlinear manner with weight, nonlinear relationships better scale infusion rates between lean and obese individuals. Allometric concepts have been successfully used to describe size-related nonlinear changes in clearances. Other nonlinear scaling options include the use of descriptors such as body surface area, lean body weight, fat-free mass, and normal fat mass. Newer pharmacokinetic models, determined from obese patient data, have been developed for propofol and remifentanil using allometric concepts and comprehensive size descriptors.

SUMMARY: Pharmacokinetic models to perform target-controlled infusion in the obese population should incorporate descriptors that reflect with greater precision the influence of body composition in volumes and clearances of each drug. It is our hope that commercially available pumps will soon incorporate these new models to improve the performance of this technique in the obese population.

Reference: