# Prospective and Retrospective Evaluations of Pharmacokinetic Changes in Obese Individuals Treated with Intravenous Immunoglobulin

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Intravenous Immune Globulin G (IVIG) is a therapy used to treat a variety of chronic and acute immunodeficiency diseases. Currently, there are no established guidelines for dosing IVIG, especially in obese patients who may need dosing modifications due to pharmacokinetic differences which may lead to an increase in adverse events or insufficient treatment of patients receiving IVIG. In this project, both a prospective and retrospective study were conducted to further establish optimal dosing guidelines for IVIG treatment in the obese population. The prospective study investigated IgG serum concentration changes in eight patients receiving IVIG, with concentrations taken immediately before and after IVIG therapy on two consecutive treatments. Preliminary analysis showed that body fat percentage was negatively correlated with IVIG half life ($R_s$=-0.71; p=0.047) and age ($R_s$=-0.74; p=0.037). The retrospective study was a single center review of clinical data of 80 patients who received IVIG at RWJUH-Somerset. The primary outcome was any IVIG-related adverse event. Significantly more patients dosed on AdjBW had adverse events than those dosed on ABW ($p<0.05$). Additionally, obese patients dosed on AdjBW spent $49,725.39 more than their non-obese counterparts. While both studies indicate that pharmacokinetic changes exist in obese patients receiving IVIG compared to normal weight patients, further studies are warranted to make recommendations for changes to clinical practice.