

Sample Abstract
Annual Dialysis Conference
March 2-4, 2008 ~ Orlando, Florida

Determination of Dietary Energy Production from Daily Glucose Load in Patients on Continuous Ambulatory Peritoneal Dialysis

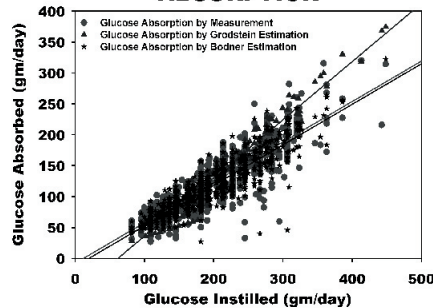
Objectives: The goals of this study were to evaluate the Grodstein and Bodner methods of estimating glucose absorption (G abs) from dialysis solution in CAPD patients compared to measured glucose absorption.

Methods: The predictive methods of Grodstein *et al.* (KI 1981;19:564) and Bodner *et al.* (Adv Perit Dial 1993;9:114) were compared to measured G abs (meas). Data from 1242 dialysis adequacy assessments in 254 patients were studied. The glucose concentration and volume of each dialysis bag were prospectively recorded. The pooled 24-hr dialysate was measured in a graduate cylinder, mixed, sampled, and G was assayed. The total G infused was calculated from data provided in the package insert. The total energy from G abs was determined using the equation: $G \text{ in } (G_i) - G \text{ out } (G_o) = G \text{ absorbed} \times 3.4 \text{ Kcal/gm}$.

Results: The mean \pm SD G abs was 113.7 ± 42.7 , 116.2 ± 56.1 , and 108.9 ± 41.7 for measured, Grodstein, and Bodner, respectively. There were no significant differences; however, the Grodstein estimates were lower than the meas values with low G_i and higher than meas values at higher levels G_i .

Conclusions: These data show that both methods can be used for estimating glucose absorption in CAPD and are most accurate at average G_{in} . The measured G abs remains the gold standard.

**PERITONEAL GLUCOSE
ABSORPTION**



Moore HL, Prowant BF, Khanna R. Division of Nephrology, Department of Internal Medicine, University of Missouri, Columbia, Missouri, USA.

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**Peritonitis in a C57BL/6 Mouse Model
of Peritoneal Dialysis (PD)**

Previous works in animal models of PD have often induced peritonitis by intraperitoneal administration (IP-Ad) of lipopolysaccharide (LPS). We compared peritonitis induced by either LPS or zymosan on dialysate leukocyte counts (WBCs) and peritoneal transport of fluid, small solutes (glucose), and macromolecules (protein) in a mouse model of PD. Peritonitis was induced in C57BL/6 mice by IP-Ad of 200 µg of LPS (*E. coli* 0111:B4, N=9) or 1 mg of zymosan (N=9) 18 hrs prior to peritoneal transport evaluation. Control mice (N=9) were not injected prior to evaluation. Peritoneal transport was evaluated by injecting 2 ml of 4.25% dextrose-containing PD solution into the peritoneal cavity; the dwell lasted for 2 hr. The mice were then euthanized and the drain volume of fluid from the peritoneal cavity (DV) was recorded. The dialysate collected at euthanasia was assayed for glucose, total protein, PGE2 and VEGF. Small solute transport was evaluated as the normalized glucose concentration in the drained dialysate (D/D0 G) and protein transport was evaluated as the normalized dialysate protein concentration (D/P TP). The results are summarized below (mean±SEM & *Different from control, P<0.01).

	Control	LPS	Zymosan
DV (ml)	2.63±0.13	2.33±0.11	1.94±0.08*
WBCs (x106/ml)	0.8±0.1	1.0±0.2	13.7±2.9*
D/D0 G	0.34±0.01	0.23±0.02*	0.19±0.01*
D/P TP	0.018±0.001	0.049±0.007*	0.078±0.005*
PGE2 (ng/ml)	0.20±0.11	0.33±0.13	3.02±1.25*
VEGF (pg/ml)	3±3	28±10	198±38*

Although IP-Ad of LPS induced changes in peritoneal transport similar to those during clinical PD, there was no significant increase in dialysate WBCs. These findings suggest that IP-Ad of zymosan in the mouse may be a more relevant model for clinical PD since it produces substantial changes in peritoneal transport and WBC migration into the peritoneal cavity.

Leyboldt, JK1,2, Kamerath, CD2, Gilson, JF,2 VASLCHCS1 and University of Utah2, Salt Lake City, UT, U.S.A.