

Dietary Energy and Carbohydrate Decrease on Non-Dialysis Treatment Days in Female Maintenance Hemodialysis Patients

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INTRODUCTION

- Of patients with advanced chronic kidney disease (CKD) who require dialysis therapy to survive, 20%-75% of individuals show evidence of protein energy malnutrition (PEM), muscle wasting, and body fat loss.
- Inadequate dietary intake may engender or aggravate PEM. Factors which may play a role in reduced dietary intakes include nutritional, clinical, social, economic, pharmacologic, dialysis unit policies which prohibit eating during dialysis, duration of dialysis, and time spent commuting to and from the treatment center.
- Previous reports have shown that dietary energy and protein intake are reduced or not different on dialysis treatment days (D) compared with non-dialysis treatment days (ND).
- We evaluated differences between dietary energy (DEI), protein (DPI), fat (DFI), and carbohydrate (DCI) intake in MHD patients on dialysis days (D) and non-dialysis treatment days (ND1=1 day after dialysis; ND2=2 days after dialysis) in 133 MHD patients.

METHODS & RESULTS

- The study included 133 patients undergoing maintenance hemodialysis (MHD), who participated in the "Nutrition and Inflammation in Dialysis Patients" study (www.NEIDStudy.org).
- Dietary intake of participating MHD patients was obtained using a 3-day food record, supplemented by a person-to-person dietary interview, to capture food intake over the last hemodialysis treatment day of the week and 2 subsequent non-dialysis days.
- Repeated measures ANOVA and Wilcoxon signed rank test were used for comparisons between M and F and between days.
- Demographics:
 - 53±14 yrs old
 - 43% female
 - 52% Diabetic
 - 40% African American, 38% Hispanic

Table 1. Dietary intake in 133 MHD patients (mean [95% CI])

Day	D	ND1	ND2	
DEI (kcal)	F	1600 [1408,1792]	1440* [1247,1632]	1455* [1263,1647]
	M	1756 [1588,1923]	1767 [1599,1934]	1749 [1582,1917]
DPI (g)	F	61.2* [52.4,69.9]	57.5* [48.7,66.2]	59.1* [50.4,67.9]
	M	73.4 [65.8,81.0]	75.8 [68.2,83.5]	72.2 [64.6,79.8]
DFI (g)	F	59.9 [50.6,69.1]	57.9 [48.7,67.2]	55.3 [46.0,64.5]
	M	68.0 [60.0,76.1]	65.0 [56.9,73.1]	64.5 [56.4,72.6]
DCI (g)	F	207.9 [182.1,233.7]	176.3* [150.5,202.1]	184.6* [158.8,210.4]
	M	214.5 [192.0,237.0]	220.2 [197.7,242.7]	220.3 [197.8,242.8]

*Female vs. Male p ≤ 0.05, † D vs. ND1

Figure 1. Difference (mean [95% CI]) in food group intake between dialysis and non-dialysis days in MHD patients

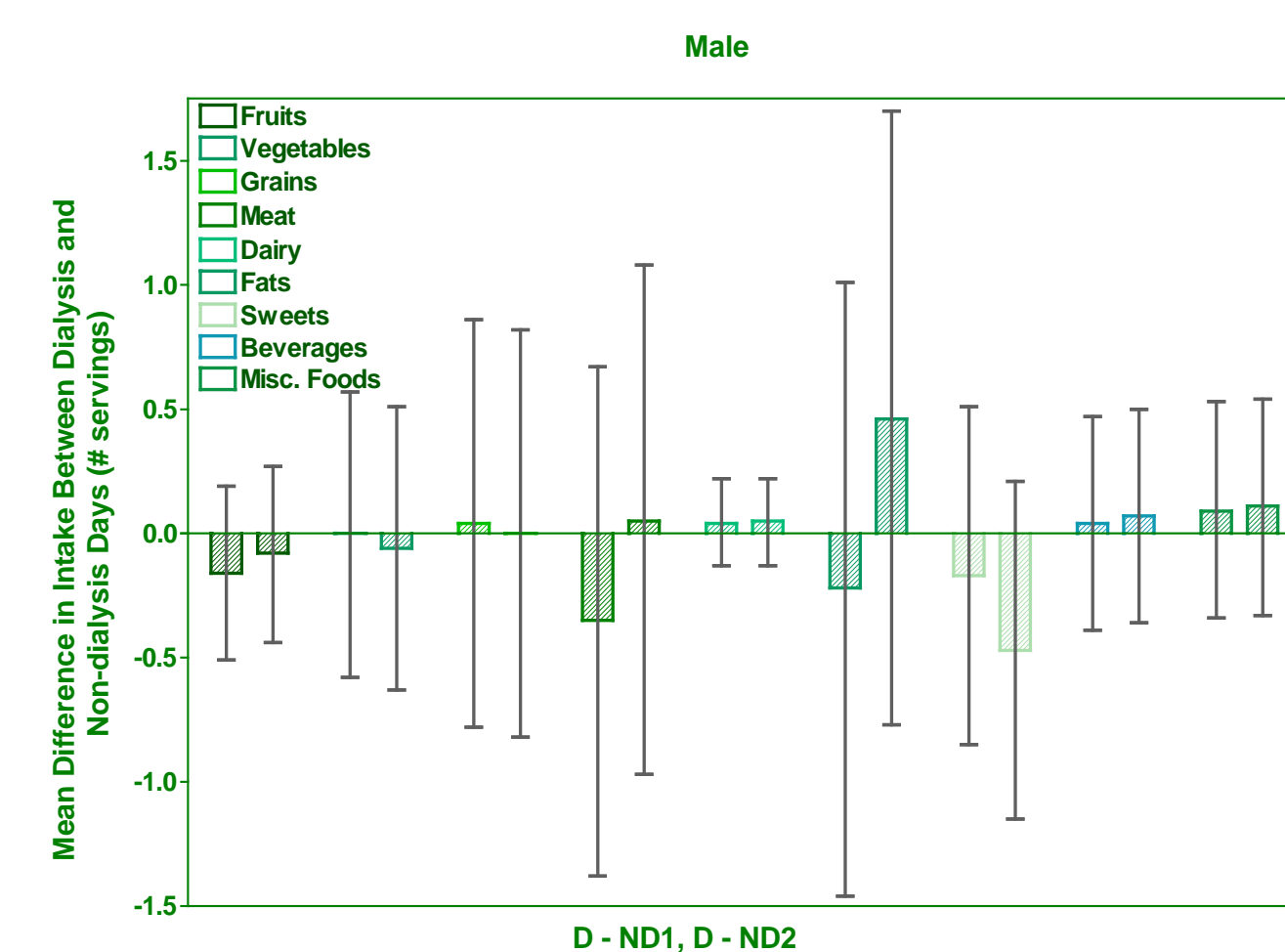
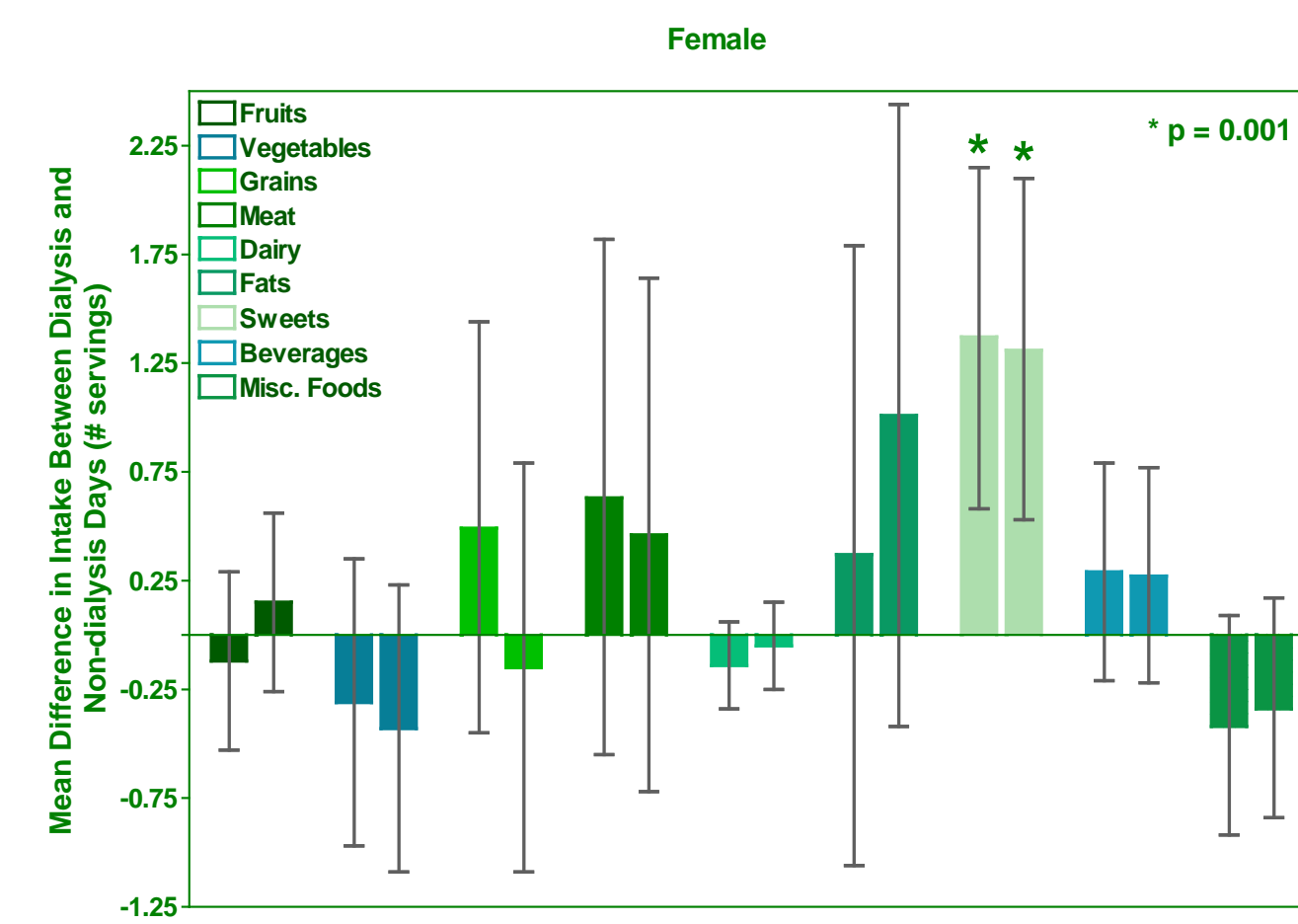
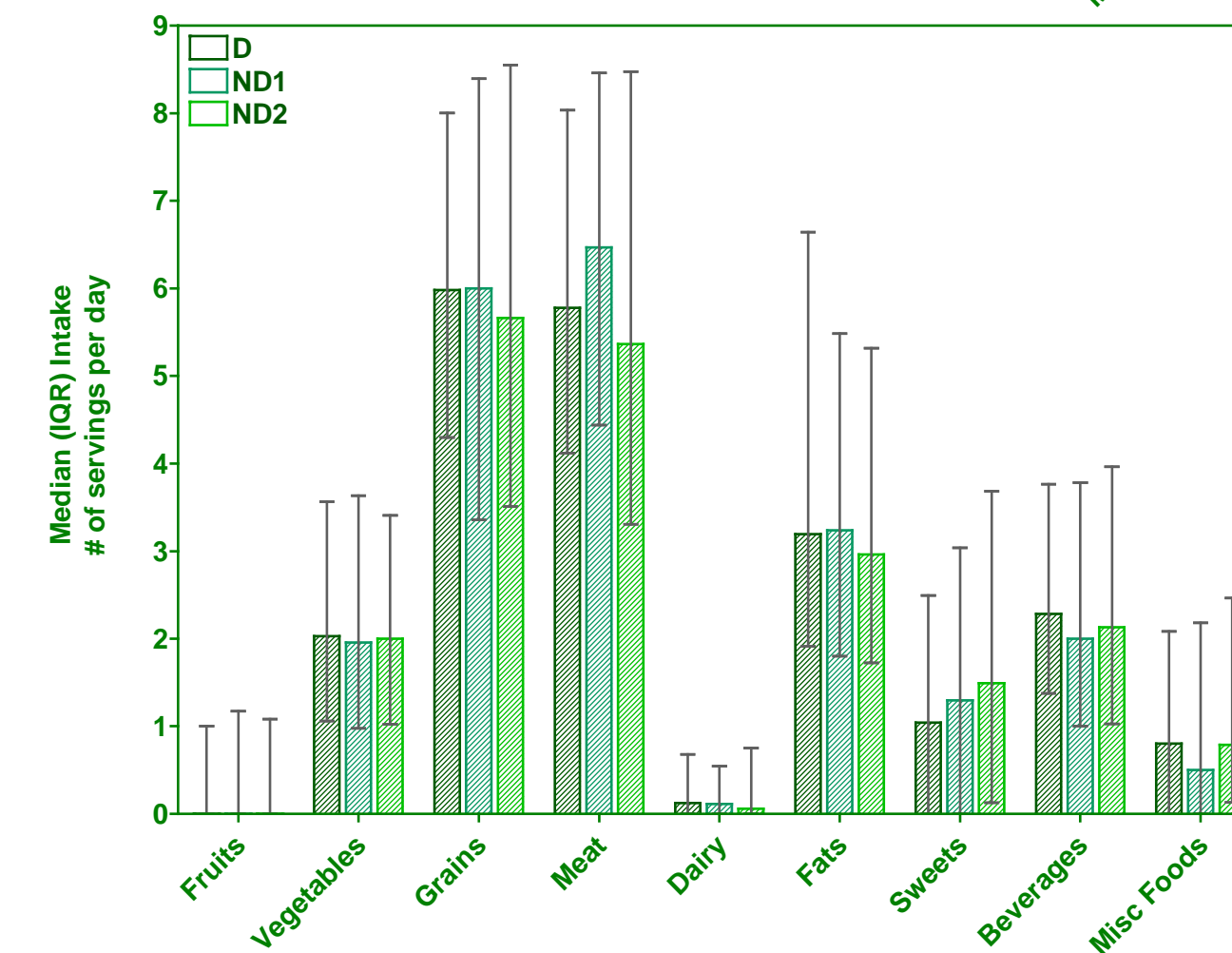
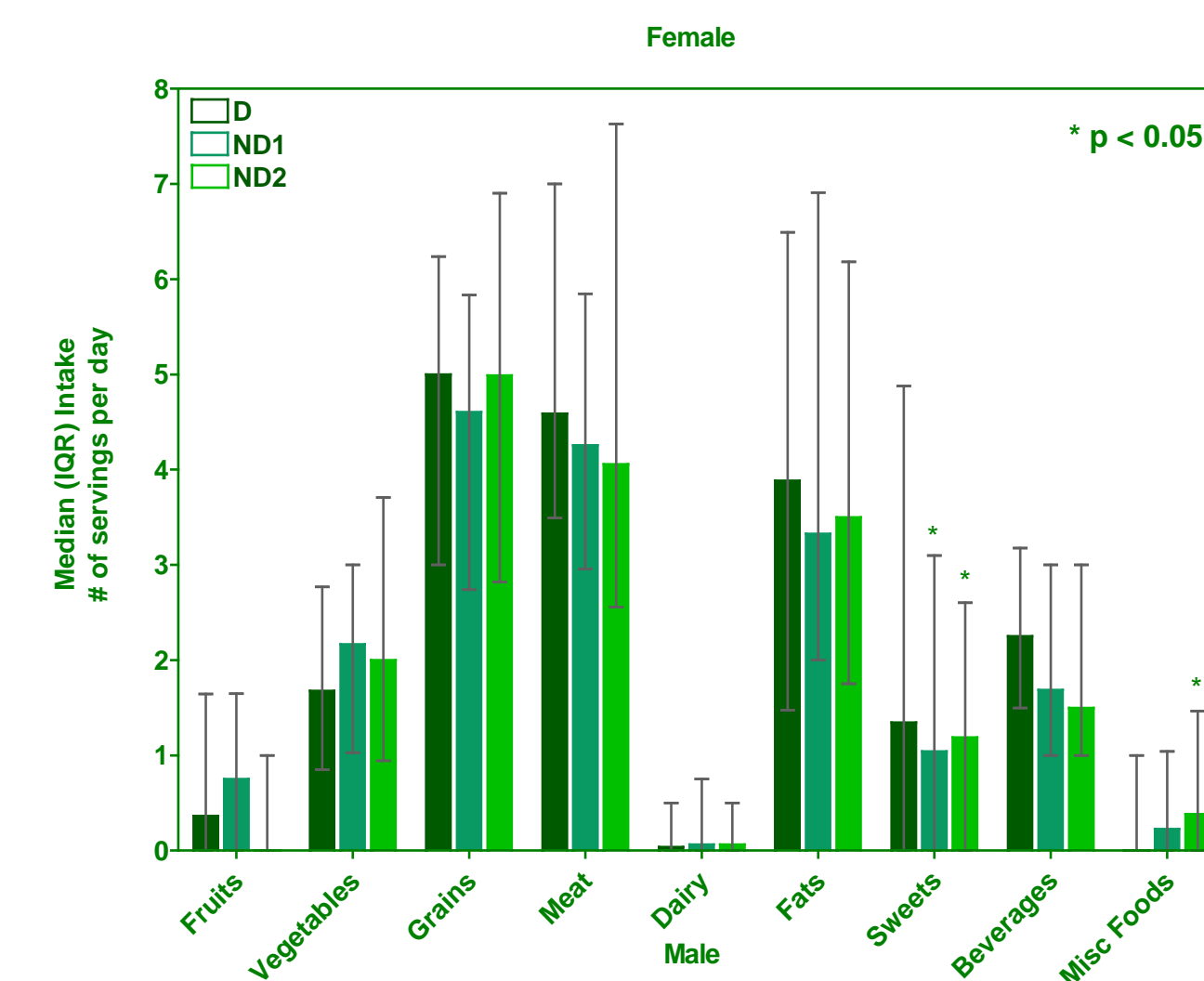


Figure 2. Food group intake (median [IQR]) on dialysis and non-dialysis days in MHD patients



CONCLUSIONS

- In males, DEI, DPI, DFI, and DCI did not differ between treatment days. However, DEI tended to be lower on ND1 and ND2 compared with D in female patients [p= 0.08 and 0.11], as did DCI [p= 0.01 and 0.06].
- The drop in DCI from D to ND1 and ND2 was greater in females vs. males [p=0.02, 0.07].
- DPI was lower on all treatment days in females vs. males (p=0.04). DFI was not different between males and females.
- Contrary to previous studies, the DEI tended to be lower on ND days in female MHD patients, which may be at least in part due to lower DCI, whereas in male MHD patients DEI and DPI were not different on D and ND days.
- At least part of the decrease in DCI on ND days in females was due to a decrease in intake of sweets (including added sugar, desserts, sweetened soft drinks).

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