

# The Prevalence, Diversity and Severity of Gastrointestinal Symptoms in Hemodialysis and Peritoneal Dialysis Patients

Topic: "Dialysis; Epidemiology, Outcome Research, Health Services Research."

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**Introduction:** Gastrointestinal (GI) symptoms are more common in patients with end-stage renal disease (ESRD) than in general population. They may differ between the hemodialysis (HD) and peritoneal dialysis (PD) patients, and often correlate to nutritional status, life quality and possibly mortality. The aim of this study was to analyze and to compare the prevalence, severity and difference of GI symptoms in HD and PD patients.

**Methods:** A total of 245 patients (173 HD and 72 PD patients), without previous history of gastrointestinal malignancies and episodes of bowel obstruction, were asked to complete Gastrointestinal Symptom Rating Scale (GSRs) questionnaire, concerning presence and severity of five dimensions of gastrointestinal symptoms: reflux, indigestion, abdominal pain, constipation and diarrhea. Multiple regression analysis was used when studying the impact of correlated factors on occurrence of GI symptoms in ESRD subgroups.

**Results:** The overall prevalence of GI symptoms in ESRD patients was 93.8%. All patients in PD group reported the presence of at least one gastrointestinal symptom, compared with those in HD group (100% vs 91.3%). The GI symptoms were more severe in PD patients than in HD patients (7.6±1.6 vs 3.5±1.8, p<0.001).

PD patients mostly experienced indigestion (93.1%), constipation (90.3%) and reflux symptoms (86.1%). Their symptoms were mostly associated with hypokalemia (B=-0.84; p=0.033), hypoalbuminemia (B=-0.1; p=0.042) and lower residual GFR (B=-0.33, p=0.001). The constipated PD patients were susceptible to gram-negative acute peritonitis (OR 3.84; CI 1.36-10.92).

	PD	HD	p
N	72	173	
GSRs score	7.6±1.6	3.5±1.8	<0.01
Reflux	2.1±1.2	0.8±0.6	<0.01
Indigestion	2.3±1.5	1.0±0.7	<0.01
Pain	1.6±0.8	0.6±0.6	<0.01
Constipation	0.6±0.5	0.9±0.8	<0.01
Diarrhea	0.5±0.4	0.3±0.5	<0.01
GI symptom prevalence	100%	91.3%	<0.01
Reflux	86.1%	65.3%	<0.01
Indigestion	93.1%	72.3%	<0.01
Pain	56.4%	54.3%	0.77
Constipation	90.3%	66.7%	<0.01
Diarrhea	31.5%	24.9%	0.25

Table 1. Severity and Prevalence of Gastrointestinal Symptoms in PD and HD Patients

Risk factor	PD		HD	
	β	p-value	β	p-value
Age	-0,013	0.385	-0,124	0,125
Months on dialysis	0.043	0.645	-0,09	0,248
Diabetes mellitus	-0,166	0,117	0,109	0,16
K+	-0,839	0,03	-0,124	0,111
Albumin	-0,103	0,042	0,017	0,828
Hemoglobin	-0,025	0,161	0,05	0,952
Kt/V	0,84	0,087	0,04	0,968
rGFR	-0,33	0.001	0.08	0.292
Ca <sup>2+</sup> binder	0,057	0,483	0,131	0,09
ID weight gain	∅	∅	-0,206	0,009

Table 2. Risk Factors for Gastrointestinal Symptoms in HD and PD patients

Indigestion was the most common (73%) and severe (0.96±0.7) presenting GI symptom among HD patients. It was mostly associated with higher doses of calcium-containing phosphate binders (B=0.26; p=0.001). We also found correlation between lower interdialytic weight gain and higher prevalence of gastrointestinal symptoms (B=-0.26, p=0.009), especially constipation (B=-0.16, p=0,043).

**Conclusion:** Present study demonstrated a high prevalence of GI symptoms in HD and PD patients, but the symptoms were more severe and common in population of PD patients. Better control of correlated factors, serum potassium level and regulation of bowel emptying, may improve quality of life of PD patients and lower their peritonitis rate. Calcium containing phosphate binders should be selected carefully in HD patients with symptoms of indigestion.

Literature:

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