Is There a Difference in the Prevalence of Gastroesophageal Reflux Disease between Peritoneal Dialysis and Hemodialysis Patients?

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Background/Aims: Gastroesophageal reflux disease (GERD) is a common upper gastrointestinal disorder in patients with chronic kidney disease (CKD). However, little is known about the prevalence of GERD in dialysis patients. The aim of the present study was to investigate the difference in the prevalence of GERD in peritoneal dialysis and hemodialysis patients.

Methods: From July 2010 to August 2011, peritoneal dialysis patients (n=30) and hemodialysis patients (n =38) were enrolled. The prevalences of GERD were assessed at a single center with endoscopic findings and interviews using a questionnaire. Also, risk factors of GERD were evaluated.

Results: The prevalences of GERD in peritoneal dialysis and hemodialysis patients were 33.3% and 39.5% (p=0.748), respectively. The prevalences of erosive reflux esophagitis (ERD) in peritoneal dialysis and hemodialysis patients were 16.7% and 23.7% (p=0.477), respectively. The prevalences of nonerosive reflux disease (NERD) in peritoneal dialysis and hemodialysis patients were 16.7% and 13.2% (p=0.685), respectively. The prevalences of GERD, ERD and NERD were higher than those of the general population. The risk factor for GERD was age in hemodialysis patients.

Conclusions: The prevalence of GERD in dialysis patients was higher than that in the general population. However, there was no significant difference between peritoneal dialysis and hemodialysis patients. (Korean J Gastroenterol 2013;62:206-212)

Key Words: Gastro-esophageal reflux; Peritoneal dialysis; Renal dialysis; Chronic kidney failure

INTRODUCTION

Esophagitis, gastritis, duodenitis and gastrointestinal reflux disease (GERD) are common upper gastrointestinal disorders in the chronic kidney disease (CKD). However, little is known about the prevalence of GERD in dialysis patients. In a single-center survey, the prevalence of GERD was higher in hemodialysis patients than that in the general population. A previous study reported that the prevalence of GERD was higher in peritoneal dialysis patients than that in hemodialysis patients and in the general population. However, the study included patients who were diagnosed using only clinical symptoms. The effect of intraperitoneal pressure (IPP) on GERD in per-
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The prevalence of Gastroesophageal Reflux Disease (GERD) in peritoneal dialysis patients remains controversial. Some previous studies have shown a strong linear correlation between intraperitoneal fill volume and a significant impact of dialysate infusion on lower esophageal sphincter function. In contrast, a manometric study showed no effect of dialysate infusion on lower esophageal sphincter pressures due to transient relaxation of lower esophageal sphincter function.

The aim of this study was to determine the differences in the prevalence of erosive reflux esophagitis (ERD) and non-erosive reflux esophagitis (NERD) between CKD patients undergoing peritoneal dialysis and those undergoing hemodialysis.

SUBJECTS AND METHODS

The study was performed in accordance with the Declaration of Helsinki, and good clinical practice and applicable regulatory requirements. This study was approved by the Konyang University College of Medicine Institutional Review Board (IRB 10-28).

1. Study design and patient population

From July 2010 to August 2011, patients with CKD undergoing peritoneal dialysis (peritoneal dialysis patients, n=40) and those undergoing hemodialysis (hemodialysis patients, n=43) for over 1 year were enrolled in this study. Fifteen patients were excluded from the study due to not meeting the inclusion criteria (7 patients) and declining to participate (8 patients). The following patients were excluded from the study: (1) those with a history of abdominal surgery; (2) those treated with a proton pump inhibitor within the past 1 month; and (3) those with eradication of *Helicobacter pylori*. A total of 68 patients were enrolled (peritoneal dialysis patients, n=30, hemodialysis patients, n=38). There were 34 males and 34 females, and the mean age of the patients was 56.3±10.7 years.

2. Questionnaire

The prevalences of GERD in peritoneal dialysis and hemodialysis patients were assessed at a single center with endoscopic findings and face-to-face interviews using a validated symptom questionnaire previously used in the general population. The questionnaire was completed by the patients.

3. Esophagogastric examinations

Each patient underwent upper gastrointestinal endoscopic examination, which was performed by a single well-trained gastroenterologist with at least 10 years of endoscopy experience. ERD was classified according to the Los Angeles classification into grades A to D. Minimal changes, such as erythema, increased vascularity, friability and edema, were excluded from ERD.

Patients were diagnosed with NERD if heartburn or acid regurgitation was the most bothersome symptom at a frequency of at least once per week in the absence of ERD.

The CLO test (ASAN Pharm., Seoul, Korea) for *H. pylori* infection was performed.

4. Statistical analysis

Data are presented as mean±SD unless otherwise indicated. The differences of mean value in age, BMI, duration of dialysis were evaluated using Student’s t test. Other variables were evaluated using the Pearson chi-square test or Fisher’s exact test. The logistic regression test was applied to compare the risk factors for GERD between peritoneal dialysis and hemodialysis patients. The statistical significance level was set at 0.05, and all statistical analyses were performed with PASW Statistics 18.0 (IBM Co., Armonk, NY, USA).

RESULTS

1. Characteristics of the patients at baseline

A total of 68 patients with CKD were divided into 2 groups: those who underwent peritoneal dialysis (n=30) and those who underwent hemodialysis (n=38). Peritoneal dialysis and hemodialysis patients showed similar numbers of females (43% vs. 55%) and age ranges (55.0±11.6 years vs. 57.0±9.9 years).

The most common etiology of CKD was diabetic nephropathy (n=36, 52.9%), followed by hypertensive nephropathy (n=20, 29.4%), glomerulonephritis (n=5, 7.4%), polycystic kidney disease (n=2, 2.9%) and other etiologies (n=6, 8.8%). The mean duration of dialysis was 67.1 (±46.8) months (Table 1).