Constipation is Closely Associated with Depression in Patients with End-Stage Renal Disease Undergoing Hemodialysis or Peritoneal Dialysis

So Yeon Choi, M.D. 1, Min-Ok Kim, M.D. 2, Hyun-Ju Choi, M.D. 2, SoonKil Kwon, M.D. 3, Hyun-Jung Kim, M.D. 4, Hyunjeong Baek, M.D. 5, Eun Hee Jang, M.D. 6, Su-In Yoon, M.D. 7 and Hye-young Kim, M.D. 3

Department of medicine, Seoul Adventist Hospital 1, Eulji University 2, Chungbuk National University 3, Gyeongsang National University 4, Kangwon National University 5, Cheju National University 6, Earn’s Clinic 7

Purpose: Constipation is a frequent complaint among dialysis patients. However, factors that contribute to constipation in these patients have not been evaluated rigorously. The aim of study was to assess the prevalence and factors that contribute to constipation in patients with End-Stage Renal Disease (ESRD) undergoing hemodialysis (HD) or peritoneal dialysis (PD).

Methods: Patients undergoing HD or PD for more than six months in the six dialysis centers were asked to complete a self-administered questionnaire that is designed to assess constipation by Rome-III criteria. Beck depression inventory (BDI) were assessed. A total of 146 patients (HD 91, PD 55) completed the study.

Results: The prevalence of constipation was 33% in 91 HD patients and 31% in 55 PD patients. Prevalence of constipation was 32% and did not differ by dialysis mode. Older age, unemployed state, high cumulative illness rating scale and high BDI were associated with constipation. In multivariate analysis, BDI was an independent factor associated with constipation. The prevalence of constipation was 18% and 50% for patients with BDI <15 and ≥15, respectively. The odd ratio for constipation in patients with BDI ≥15 was 3.4 (95% CI, 1.4-8.1).

Conclusion: Careful psychogenic attention must be paid to ESRD patients with constipation.

Key Words: Constipation, Depression, End-stage renal disease

INTRODUCTION

Constipation affects a substantial portion of general population 1). However, for most affected persons, constipation is transient and requires no or minimal intervention such as fiber supplements or increase fluid intake 2). In patients with End-Stage Renal Disease (ESRD), the prevalence of constipation is higher than general population 3-5). Contrast to general population, for most patients with ESRD undergoing dialysis therapy, lifestyle interventions (eg, increase in water intake, fiber supplements, exercise) do not provide adequate relief, and usually can not be recommended, because they often need water or diet restriction. In patients with ESRD undergoing dialysis therapy, constipation can be challenging to treat and have a negative impact on quality of life 4).

An understanding of the pathophysiology and risk factors of constipation in dialysis patients is funda-
mental to effective management. In general, female gender, advanced age, physical inactivity, use of certain medication (eg, calcium channel blockers, opioid agonists, anticholinergics), and particular medical disorders (eg, diabetes mellitus, thyroid disease, hypercalcemia) are known to be associated with constipation\textsuperscript{6,7}. Many patients with ESRD already have several risk factors for constipation. Diabetes mellitus is a common cause of ESRD and anti–hypertensive medication including calcium channel blockers is frequently prescribed in ESRD patients. But until now, factors associated with constipation in ESRD patients have not been investigated thoroughly. Furthermore, the definition of constipation varies among physicians and other health care providers. In an attempt to standardize the definition of constipation, a consensus definition was developed and revised by international experts in 2006 (Rome III criteria)\textsuperscript{8}. The prevalence of constipation by Rome III criteria has not been reported in dialysis patients. Thus in this study we aim to assess prevalence of constipation by Rome III criteria and to analysis factors that are associated with constipation in patients with ESRD undergoing HD or PD.

MATERIALS AND METHODS

1. Patients

All patients undergoing HD or continuous ambulatory PD for more than six months in the dialysis center of five university hospitals or one local dialysis clinic were asked to complete a self–administered Rome III questionnaire and Beck depression inventory (BDI). The dialysis patients were given the questionnaires when they visited the HD unit for dialysis or during a visit to the outpatient clinic of PD. Cumulative illness rating scale (CIRS) for co–morbidities were assessed by respective physicians. Patients whose age less than 20 years or who had undergone a major abdominal operation, or who had a major psychiatric disorder were excluded. In addition, patients over 50 years of age who had not had a sigmoidoscopy or colonoscopy in the previous 5 years were also excluded. The study protocol was approved by the ethics committee of Eulji University Hospital, and informed written consent was obtained from all patients.

2. Questionnaires

Constipation was assessed using the self–administered version of Rome III questionnaire for functional constipation developed by the Korean Society of Neurogastroenterology and Motility, available at www.ksgm.org (in Korean, appendix 1). In our study, constipation was defined according to the Rome III criteria for the diagnosis of functional constipation. According to Rome III criteria\textsuperscript{8}, constipation was defined when patient fulfill following criteria for the last 3 months with symptoms onset, at least 6 months prior to diagnosis:

1) 2 or more of the followings:
   (1) Straining during at least 25% of defecations
   (2) Lumpy or hard stools in at least 25% of defecations
   (3) Sensation of incomplete evacuation for at least 25% of defecations
   (4) Sensation of anorectal obstruction/blockage for at least 25% of defecations
   (5) Manual maneuvers to facilitate at least 25% of defecation
   (6) Fewer than 3 defecations per week

2) Loose stools are rarely present without the use of laxatives

3) There are insufficient criteria for IBS.

Depressive symptoms were assessed using BDI questionnaire. It has been used extensively and its validity and reliability are well documented\textsuperscript{9,10}. BDI measures both cognitive and somatic symptoms. Its