Effects of Beraprost Sodium, an Oral Prostaglandin I2 Analogue, on Hemostatic Factors and Inflammation in Chronic Peritoneal Dialysis Patients

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Purpose : Beraprost sodium is a stable, orally active PGI2 analogue with vasodilatory, cytoprotective, antiplatelet, antithrombotic, and anti- inflammatory effects. The objective of this study was to evaluate the effects of beraprost sodium on hemostatic factors and inflammation in patients receiving chronic peritoneal dialysis (CPD).
Methods : Between January 2007 and June 2007, a total of 100 end- stage renal disease (ESRD) patients on CPD at Asan Medical Center Dialysis Clinic were included in this prospective study. The 100 patients were randomized to the treatment group (n=50; 24 men, 26 women; age, 54.4±12.2 years), received either 20 g of beraprost sodium (Green Cross, Yong- In, Korea), two tablets three times a day for 8 weeks, or to the control group (n=50, 25 men, 25 women; age, 53.8±12.3 years), no medication. Blood samples for lipid profile, serum albumin, prealbumin, fibrinogen, D- dimer, vWF, troponin- T, and hs- CRP levels were taken from each patient before starting medication and after 8 weeks.
Results : Of the 100 patients, 94 completed this study. Five patients in the treatment group who did not take the prescribed dosage of beraprost sodium were excluded from the analysis. Three patients developed headache, one patient developed facial flushing, and one patient was hospitalized because of peritonitis. One patient in the control group was hospitalized because of hypoglycemia. Medication compliance, estimated by counting returned tablets, was 95% throughout the study in the treatment group. Baseline values for all parameters were similar between the two groups. In the control group, total cholesterol, triglycerides, HDL- C, ApoA1, ApoB, albumin, prealbumin, fibrinogen, D- dimer, vWF, troponin- T, and hs- CRP levels did not change over the 8- week study. In the treatment group, beraprost sodium administration for 8 weeks was associated with significant reductions in D- dimer levels, from 0.87±1.12 mg/L to 0.62±0.53 mg/L ($p<0.05$), and in vWF levels, from 135± 39% to 120±31% ($p<0.05$). In contrast, 8 weeks of beraprost sodium administration did not affect total cholesterol, triglycerides, HDL- C, ApoA1, ApoB, albumin, prealbumin, fibrinogen, troponin- T, or hs- CRP levels.
Conclusion : Beraprost sodium, with a fixed daily dose of 120 g, was found to lower plasma D- dimer and vWF levels. We have shown here that beraprost sodium was effective in partially reversing the thrombogenic coagulation profile and endothelial injury in CPD patients.

Key Words : 베라프로스트, 지혈 요소, 염증
Beraprost, Hemostatic factors, Inflammation