SEVELAMER HYDROCHLORIDE USE AND CIRCULATING ENDOTOXIN AND INFLAMMATORY BIOMARKERS IN HEMODIALYSIS PATIENTS: A PRELIMINARY REPORT

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Chronic inflammation is prevalent among patients with chronic kidney disease (CKD) undergoing hemodialysis (HD). Endotoxin (ET) is a potent inflammatory mediator released by naturally occurring bacteria in the intestinal tract, and ET has been detected in patients with CKD. Uremia-induced impairment of the intestinal mucosa raises the potential of ET exposure in patients with CKD as a result of bacterial translocation. Sevelamer hydrochloride (SH) is a commonly used phosphate binder in HD patients that has also been shown to reduce C-reactive protein (CRP) levels. However, little is known of the mechanism underlying this anti-inflammatory effect. The purpose of this study was to explore the hypothesis that SH attenuates inflammation by binding bacterial ET in the intestinal tract.

We performed an observational study of 46 stable HD patients. Based on a current and stable (minimum of 30 days) phosphate binder regimen, patients were divided into a SH (n=30) and control (n=16) group. Subjects with conditions that are known to affect circulating biomarkers of inflammation were excluded. Blood samples were collected at 2 consecutive HD sessions, and were tested for CRP, interleukin-6 (IL-6), and ET levels. Age-adjusted mean values were compared using an analysis of covariance (ANCOVA).

A preliminary analysis performed on the first 38 subjects demonstrates no statistically significant difference in CRP and IL-6 levels between the SH and control group after adjustment for age. This preliminary study is limited by its cross-sectional design, the small sample size and group size imbalances. In summary, although SH use was not associated with circulating biomarkers of inflammation in HD patients, further laboratory testing including ET measurement is under way before firm conclusions can be drawn.