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**Benefits of the Dual Stage Ultrafilter(DSU) in Chronic Hemodialysis Patients:
Evidence for Improved ESA Responsiveness**

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Ultrapure dialysate has been shown to reduce inflammatory markers and improve nutritional and anemia parameters in patients on chronic maintenance hemodialysis. The DSU (Dual Stage Ultrafilter,) has been shown to reduce bacterial counts and endotoxin levels by at least a 5-log order of magnitude. We performed an observational trial of this filter in a hospital-based acute dialysis facility in the USA.

There were 23 chronic stable hemodialysis outpatients treated during the 6 months after the installation of the DSU) filters. The mean age was 51 (range 12-91), 61% male, predominantly Hispanic (70% Hispanic, 17% African-American, 9% Caucasian, 4% Asian) and 30% diabetic. Comparing data from the 6 month period after the installation of the filters to the preceding 6 months, there was an increase in the mean hemoglobin level of 0.5 gms/dL ($p=0.010$) with a reduction in the mean weekly darbopoietin dose of 14.6 mcg ($P<0.001$) translating to a reduction in the ESA resistance index (weekly ESA dose/hemoglobin level) of 1.52 ($p<0.001$). During this time period, indirect inflammatory markers showed a reduction in the mean WBC count of 0.46 ($p=0.008$), an increase in serum albumin of 0.08 ($p=0.024$), an increase in the TSAT of 1.0% ($p=0.34$, NS) and an increase in the serum ferritin of 85 ($p=0.06$). In conclusion, the use of a filter to further reduce endotoxin exposure in chronic hemodialysis patients can result in improved ESA responsiveness and a lower ESA dose.

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