Hydration status of patients dialyzed with biocompatible peritoneal dialysis fluids

Monika Lichodziejewska-Niemierko[1,2], Michał Chmielewski[1], Alicja Ryta[1], Maria Dudziak[3], Bolesław Rutkowski[1]

[1]Department of Nephrology, Transplantology and Internal Medicine, [2]Department of Palliative Medicine, [3]Department of Noninvasive Cardiac Diagnostics. Medical University of Gdańsk, Poland

Objectives:

Biocompatible fluids for peritoneal dialysis (PD) have been introduced to improve the dialysis and patient outcome in end-stage renal disease. However, their impact on the hydration status, residual renal function and dialysis adequacy has been a matter of debate. The aim of the study was to evaluate the influence of a biocompatible dialysis fluid on the hydration status of prevalent PD patients

Methods:

The study population consisted of 18 prevalent PD subjects, treated with standard dialysis fluids. At baseline, nine patients were switched to a biocompatible solution, low in glucose degradation products (GDPs) (Balance, Fresenius). Hydration status was assessed through clinical evaluation, laboratory parameters, echocardiography, and bioimpedance spectroscopy throughout a 24-months observation period.

	Stay safe (n=9)	Balance (n=9)	P-value
Age (years)	45.0 (38.0-50.0)	53.0 (43.6-62.0)	0.12
Gender (%M)	44	56	0.7
D/P	0.59 ± 0.08	0.66 ± 0.11	0.1
Time on dialysis (months)	16.4 ± 12.2	26.6 ± 13.1	0.1
Kt/V	2.34 ± 0.45	2.36 ± 0.63	0.91
RRF (ml)	1117 ± 693	1133 ± 1119	0.97
NTproBNP (pg/ml)	97.5 ± 92.6	83.0 ± 79.0	0.72
hsCRP (mg/l)	7.96 ± 9.09	8.72 ± 8.00	0.84
Prealbumin (mg/dl)	31.6 ± 5.8	34.1 ± 4.9	0.32

Table1. The baseline characteristics of the studied patients

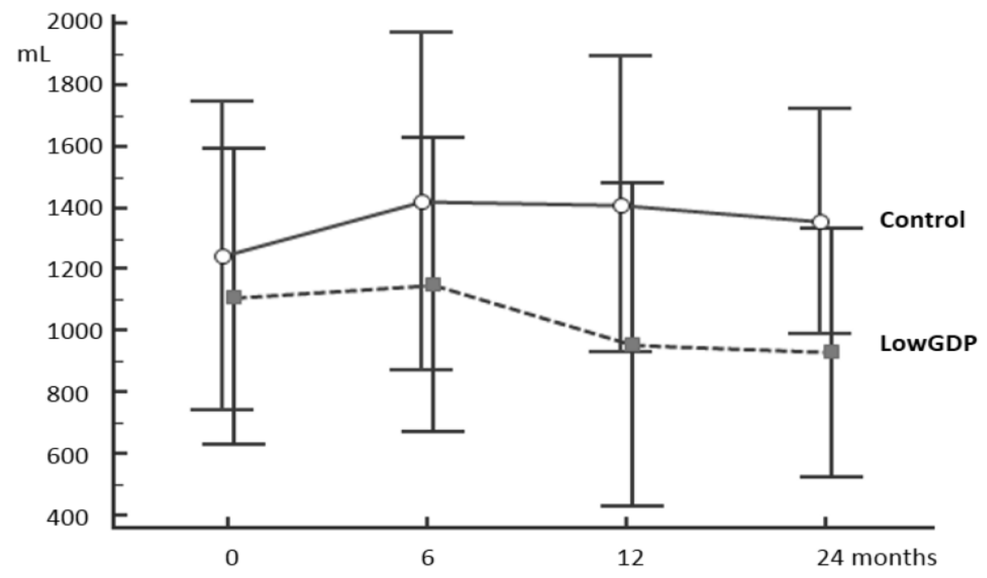

Figure 1. Dialysis ultrafiltration values in patients treated with fluids characterized by low concentration of glucose degradation products (lowGDP), and with standard dialysis fluids (control).

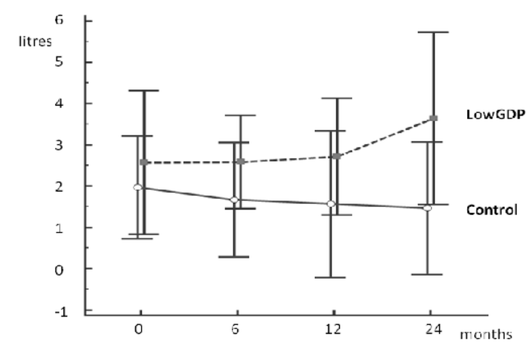

Figure 2

Figure 2. Hydration status (HS) in patients treated with fluids characterized by low concentration of glucose degradation products (lowGDP), and with standard dialysis fluids (control).

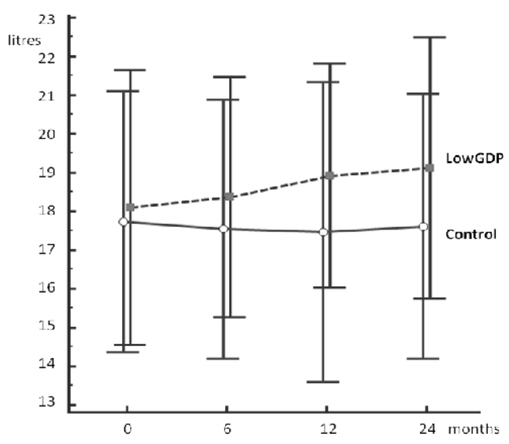

Figure 3a

Figure 3a. Extracellular volume (ECV) in patients treated with fluids characterized by low concentration of glucose degradation products (lowGDP), and with standard dialysis fluids (control).

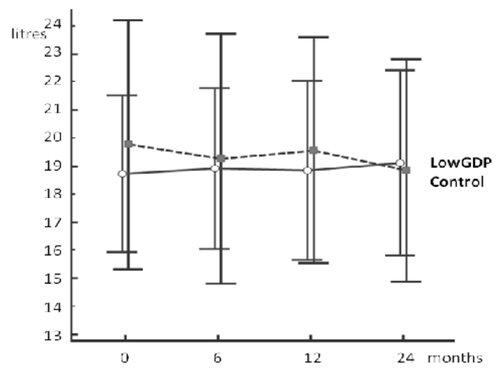

Figure 3b

Figure 3b. Intracellular volume (ICV) in patients treated with fluids characterized by low concentration of glucose degradation products (lowGDP), and with standard dialysis fluids (control).

Results:

During the study period urine volume decreased similarly in both groups. At the end of the evaluation there were also no differences in clinical (body weight, edema, blood pressure), laboratory (NTproBNP) or echocardiography determinants of the hydration status. However, the dialysis ultrafiltration decreased in the low GDP group, and at the end of the study equaled 929 ± 404 ml, as compared to 1317 ± 363 ml in the standard fluid subjects; p=0.06 (Figure 1). Hydration status assessed by the bioimpedance spectroscopy was +3.64 ± 2.08 L in the low GDP patients, and +1.47 ± 1.61 L in controls; p=0.03 (Figure 2). The difference in HS was probably due mainly to changes in ECV (Figure 3a), as the ICV remained unchanged during the 2 years of the study period (Figure 3b). The type of dialysis fluid turned out to be a significant predictor of HS at the end of the study (R^2=0.29, p=0.03), but it lost its predictive potential when adjusted for age, gender and peritoneal transport.

Conclusions:

The use of a low GDP biocompatible dialysis fluid was associated with a tendency to overhydration, probably due to diminished ultrafiltration in prevalent PD patients

52 ERA
482--SP
L2) Dialysis. Peritoneal dialysis.
Michal Chmielewski
DOI: 10.3252/pso.eu.52era.2015
ePosters supported by F. Hoffmann- La Roche Ltd.
52nd ERA-EDTA CONGRESS London2015 UNITED KINGDOM MAY 28th-31st
PosterSessionOnline.com